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THE COMPLETE GARDENER

By the Same Author

**GARDEN FLOWERS AS
THEY GROW**

*(Photographed in Colour direct from
Nature by H. ESENHIGH CORKE,
F.R.P.S., F.R.H.S.)*

THE GARDEN AT HOME

THE IDEAL GARDEN

**GARDEN PLANNING AND
PLANTING**

**GARDENING DIFFICULTIES
SOLVED**

**SWEET PEAS AND HOW
TO GROW THEM**

**LITTLE GARDENS : How to
Make the Most of Them**

INDOOR GARDENING

**GARDEN WORK FOR
EVERY DAY**

THE POCKET GARDENER

**CASSILL & CO., LTD., LONDON, NEW YORK,
TORONTO AND MELBOURNE**





AN OLD WORLD GARDEN OF ROSES, LILIES AND LARKSPURS.

The Complete Gardener

BY
H. H. THOMAS

Author of "The Garden as Home," "The Ideal Garden," etc.,
and Editor of "The Gardener"

ASSISTED BY
EXPERTS IN SPECIAL SUBJECTS

WITH COLLORED FRONTISPICE, 128 FULL-PAGE ILLUSTRATIONS
FROM PHOTOGRAPHS AND NUMEROUS DRAWINGS IN THE TEXT

THIRD EDITION

WILEY AND COMPANY, LTD.
New York, Toronto and Melbourne

1913



82 1900 GARDEN OF RIDEN, LILJA AND LARSTEN

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PREFACE

IN preparing the present volume the aim has been to provide the garden-lover with a work to which he may turn for reliable and practical information about any shrub, flower, fruit, or vegetable he is likely to wish to grow. "The Complete Gardener" does not pretend to the fullness that is expected to distinguish a gardening dictionary; rare plants and those of little value in the garden are not included. It is concerned in bringing to notice the best of hardy flowers, greenhouse flowers, evergreen and blossoming shrubs, fruits, and vegetables, and in telling how they are grown. Plants having strong claims upon the consideration of the gardener, either for their use or their beauty, alone are admitted to the following pages.

It may possibly be urged against "The Complete Gardener" that, having regard to its serious purpose, it is, here and there, couched in too light a vein. But the desire has been, not, by the use of highly technical language, to impress the amateur with the difficulties of plant-growing, but, rather, by the use of homely phrase, to encourage him and to simplify matters as far as possible. It can scarcely be denied that many amateurs are deterred from extending their flower cultivation owing to the supposed difficulties that bar the way. To present prosaic facts in a readable fashion is surely not to lessen the teaching value of the book!

It is hoped that the numerous lists (which form a special feature of the present volume) will be found convenient for reference; they contain the names, both popular and botanical, of hundreds of beautiful flowers and show at a glance their

cultural needs, the colour of the flowers, and other essential details. Even at the risk of repeating a few names and a few particulars, it has been thought desirable to make each list complete. The detailed information in the lists, together with an adequate index, should enable the reader to locate the subject of his inquiry with the least possible searching.

The full-page plates (which, with a few exceptions, are from the writer's own photographs) have been chosen as much for the sake of the lessons they teach as for their pictorial value, so that they may supplement the information conveyed in the written page.

The writer has had the privilege of being assisted by several experts, and desires to express his acknowledgments and thanks to Mr. C. A. Ealand, M.A., F.L.S., for the chapters on "Insect Pests" and "Fungoid Diseases"; to Mr. Owen Thomas, V.M.H., for "Fresh Vegetables All the Year Round"; to Mr. Vincent H. Kirkham, B.Sc., for "The Use and Value of Artificial Manures"; to Mr. W. Truelove for the notes on "Orchids," and to Mr. H. C. Rollinson for the sketches in the text.

H. H. T.

February, 1912.

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THE COMPLETE GARDENER

CHAPTER I

A WORD OF ENCOURAGEMENT

IN a book of mine published recently, "The Ideal Garden," the first chapter is entitled "The Ogre of Dogmatism." There I endeavoured to instil in the minds of the uninitiated that gardening, so far at least as it is concerned with the cultivation of plants, is not so difficult as many writers and practitioners would have us believe, and that the strict observance of elaborate detail has gained an exaggerated value. I wrote this chapter with some misgiving, but considering how directly its teaching is opposed to the tenets of gardening as usually expounded, it has met with far less criticism than I expected. It is true that in some instances I was taken to task for thus daring to inveigh against principles that have been propounded for generations, but on the whole I was agreeably surprised to find that reviewers, especially in non-technical journals, endorsed my expression of opinion. I feel that if it were necessary to protest against the downright and dogmatic in a book that endeavours only to point out some of the ideals in gardening and the way to their attainment, it is obligatory upon me to offer a word of encouragement to amateurs in such a book as THE COMPLETE GARDENER.

In dealing at length with such an inexhaustible subject as gardening and in giving practical details of cultivation one naturally endeavours to point the way to perfection. Thus it is an easy matter to make things appear more difficult than they really are. In fact, gardening work is actually far simpler than it appears to be in print, for in trying to make himself thoroughly understood the writer is apt to insist on this and on that, whereas if he were carrying out the work himself he would without doubt achieve his object by a far more simple and direct method than that which he advocates.

A frequent stumbling block to the amateur is found in the preparation of soil mixtures, or composts, as they are termed. Yet it is surprising how large a number of plants may be grown in flower pots with three ingredients, namely, turfy soil, leaf mould and sand. If proof were wanted of the needlessness of such elaborate preparation as is so often advised, it might be seen in any market nursery. There the plants are grown for sale, and naturally they must be well grown or they would never sell. How rough and ready are the methods employed! Yet how satisfactory are the results.

One might readily show further how wasteful and unnecessary is the procedure often advocated, for frequently one gardener uses a different soil mixture from his neighbour, and in growing the same kind of plants both achieve most excellent results! And so I venture to say that an amateur following still another and less elaborate way is also likely to achieve excellent results. This principle holds good throughout garden practice. Therefore where in the following pages I seem to advise an impossible method—impossible, that is, in the special circumstances existing—for obtaining ideal results, let the reader try methods that are possible in his case, and most probably he will not be disappointed. Then conditions vary greatly in different gardens, and conditions of soil, climate, aspect, etc., exert an important influence on plant cultivation. One gardener finds that a plant thrives best on a border facing north, another grows it best on one facing east, and so on. Both may be perfectly correct in their treatment, but each would be wrong in advising that his special method was the best and the only right way of cultivation.

A case in point occurs in growing that great favourite, the Violet. I have assisted in the care of many Violet plants; some were grown on a border facing west, others on land facing east, and really they all seemed quite satisfactory. Only the other day I received a very dogmatic article from a gardener who grew most excellent Violets, to judge from the flowers he kindly sent me, but, strangely enough, he insisted that the only place where they would thrive to perfection was in the open garden, exposed to all points of the compass! Violet growing at once becomes a Chinese puzzle, and the aspiring amateur may well give it up, especially if the only border he has is one that faces north. But, believe me, he might grow very good Violets even there!



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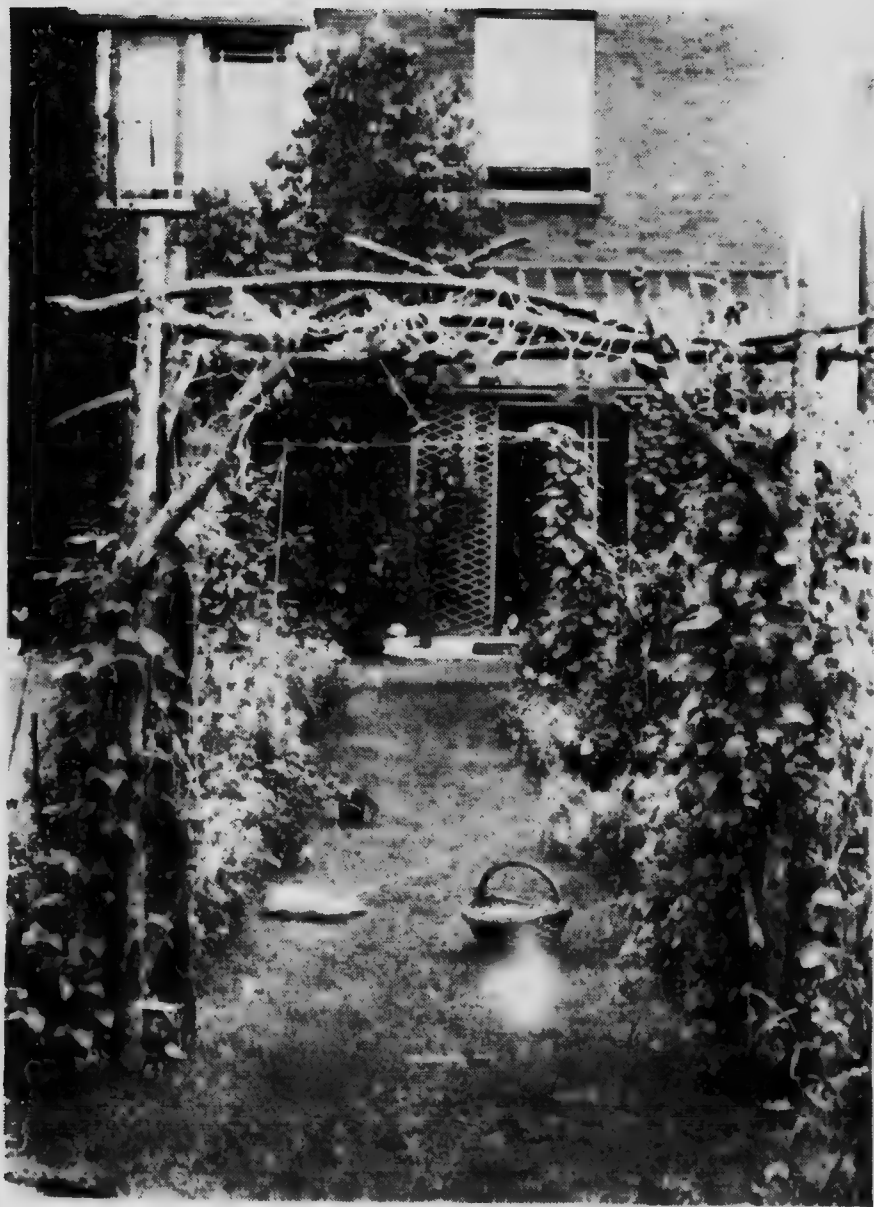
So I would say to those who do not know yet are trying to find out the truth, if your gardening text book says that the only place in which to grow your favourite flowers is a north border and you do not possess one, put them on the south border and see what happens. Nothing very dreadful most probably, for you can be fairly certain that if you searched long enough some writer would be found expressing an exactly opposite opinion to that which first came to your notice. In truth, plant growing is such a vast subject, on which all sorts of local conditions exert an influence, that it is foolish to lay down direct rules for the cultivation of any plant out of doors and even, in a lesser degree, under glass, since cases proving exactly the opposite to one's fixed opinions might undoubtedly be found. All of which would seem to prove that gardening books are worse than useless. This is hardly the case, but it is true that they can never hope to do more than guide the intelligent gardener. They will assist him with hints, they may describe the methods which are most likely to succeed, they can tell him when to do things—and this is of the first importance—but they cannot logically lay down rules for the governance of plant growing. No one can make the most of his garden until he has found out its capabilities and discovered its limitations.

CHAPTER II

CHOOSING A GARDEN

Books have been written, I believe, on "Choosing a House" and even on "Choosing a Wife," but I shall attempt only a modest chapter upon the possibly equally important task of choosing a garden. All three are beset with difficulties; some may find that a satisfactory garden is the most elusive of the lot! There are perhaps rules to be laid down for those in quest of an ideal garden site, but they are more honoured in the breach than the observance, for how often does one find all the essential conditions neatly tucked up into an acre, more or less, of garden ground? Rarely or never; so it behoves each of us to consult his individual preferences with due regard to the sunshine, for is not sunshine the very life and soul of a garden of flowers? Without this, although you may induce plants to grow, you cannot induce many of them to flower. You will not enjoy even those that blossom in the shade unless there are others in a sunny spot, for the charm of a shady garden is not that it is in the shade, but that it is not in the sunshine. So paradoxical a statement must be left to explain itself, for I must hie me to my purpose, which is, as avowed by the title of the chapter, to give advice on choosing a garden.

I feel very much as I am sure the writer of one of the volumes above referred to must have felt when he set out to tell others how to choose a wife, for in the choice of a garden individual preferences count for a very great deal. There is also the house to be reckoned with, which places me at a disadvantage, for while the lady always helps to choose the home, the gardener often has to take the house and make the most of the garden, or perhaps form a new one. The latter alternative is much to be preferred, for the owner can at least make the garden as he wishes to have it, and enjoy the charm of watching it grow beautifully old, whereas to superimpose one's own ideas upon those of other people, especially those that have been practised for some years, is never quite



IN A GARDEN IN THE SUBURBS.

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so satisfactory. But I have in this chapter no sympathy with those whose first consideration is the house. I am only for the moment concerned with the voyage of discovery of which a garden is the objective. Our password shall be "Sunshine," for this and none other shall prove the "Open Sesame" to a garden of bloom. This, together with shelter, will yield us a full meed of right royal pleasure. The soil—ah, yes! the soil. I do not wish to minimise its importance, but it is a moot point whether it takes longer to provide substantial shelter or to improve the soil. Personally I would much rather have the shelter ready made and have to improve the soil for, at any rate, the latter is exhilarating work, while to watch the development of shelter trees is a slow and thankless task. While they are growing—ah! one shivers with the plants. Cold draughts nip off the blossom buds and bursting growths of the choicest plants, and, alas! they have to begin all over again. And think of the staking and tying that are necessary in a windy garden; these items assume such an importance that the garden is in danger of being transformed into a nursery. But even a windy garden is not to be despised if other essential points are in its favour. By throwing up a bank (how casually I write of it, as though the gardener had but to wave his magic wand—the spade—and the thing were done!) and by planting thickly on top of it here and there where there is most exposure, much can be done to take the sting out of the wind before it reaches the inner garden. One may, of course, throw up a bank the full length of the windy side and plant it with a belt of shelter trees, and so, by shutting out the gales, shut in the garden.

Though I should be the first to admit that a garden is a place of privacy, a homely spot enclosed, I should be the last to advise that the world be shut out by close planting, for that is at once to destroy the indefinite boundary that gives the impression of distance, and this is of immense importance to the garden maker, who would have the garden a part of its surroundings and not hurdled in like a sheep pen in a meadow. Occasional belts of shelter trees do much towards breaking the force of the wind; it is true that this is apt to concentrate in the gaps, but how easily is it again foiled by a fresh group of trees inside the boundary! Thus it is soon lost, and by the time it reaches the garden proper its spirit, the spirit of the wind, is broken. And think of the delightful little spots for picturesque

gardening that are opened up between the trees which, thus disposed in groups, shelter while they do not shade. It is always, in gardening, unsatisfactory to attempt to shut out anything, even your neighbour's house, by a thick belt of trees. You may achieve the object in view, you may possibly annoy your neighbour, but you certainly spite yourself. At once the limits of your garden are defined, a wall of foliage stares you in the face, and the garden loses the charm that comes from the sight of a distant scene. Far better would it be to plant skilfully and with care, just groups of trees; they will achieve the object in view and allow a glimpse of your neighbour's chimney without giving him a peep of yours. Above all things, choose if you can a garden that has an irregular surface, hills and hollows, for the real garden magic never vests in a pleasaunce that is flat. Whatever the hills may give away, the hollows more than hold in mystery.

And the soil? Well, soil is not always so important as it may seem. Rather than attempt to seek a garden with sunshine, shelter and an ideal soil, make sure of the former and either adapt your garden to the soil, or so ameliorate the soil that it shall suit the plants you wish to grow. Need I say that the latter is by far the more expensive and not always the more satisfactory plan. For the key to an ideal garden is often found in the plants that are indigenous to it. Is it shallow, gravelly soil where Birches cluster, where the Pines are not unhappy and the Heather loves to bloom? Then to dig it all up, import fresh soil and lay it out in flower beds is not only to impoverish one's pocket, but to create false and alarming effects. Is it woodland, with soil enriched and deepened by generations of fallen leaves? Then leave it woodland still, crowning the knolls with shrub blossom, planting the glades with flowers. Is it stiff and formal, without appeal or charm? Then I would plant it with free-growing flowers. Only thus is the stiffness destroyed and garden magic restored. Paths paved with brick or stone, rough stone for edging, over which a tufted evergreen may fling itself, beds full of Roses and Rosemary, Lilies and Lavender, Larkspurs and Lupines, Hollyhocks and Pansies—these, while themselves informal, invest with the full charm of old-world blossom even the garden of formal design.

Is the garden none of those and only to be classed as ordinary? Then with straight and wide grass walks between borders of herbaceous bloom, broadening in the centre and



THE LOVELY NARCISSUS STELLA ON THE WOODLAND FRINGE.

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THE HOME GARDEN

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ere encircling an old sundial, with stretches of lawn unbroken
flower beds, trees or shrubs, with Roses, not in the
ery only, but wherever room can be found for them, with
nding walks on the garden fringe—with all these aids,
d bringing the garden to the very door of the house, you
all remove the reproach that clings to the commonplace.
nd, if you are building house and making garden too, let
e best of it face west, then shall you miss none of the
amour that hovers over the garden when sunset floods it
ith a magic glow, touching leaf and flower with such light
nd shade as painter never pictured. When twilight deepens,
ll the magic and mystery of garden craft shall come home
o you, every flower shall tell a tale, and every leaf give greet-
ng. One needs only to live in a garden one has made to
ome to love it with a lasting love, and who then shall say
ow much the garden tells its maker, what sweet nothings
hat mean so much to its lover, so little to everyone else?

CHAPTER III

THOUGHTS ON GARDEN MAKING

"ALL gardens ought to be marked out on the ground itself without the intervention of any plan. A plan is always a feeble substitute for the ground, and even if made with the greatest care and cost, has still to be adapted to the ground."

Such is the dictum of Mr. William Robinson. We must, I think, all agree that a plan can give no real idea of the ultimate aspect of the garden when it shall have outgrown its bareness, and still less when it has passed its first youth; from a plan we can form no conception of the beauty of form the garden will eventually show. We cannot even conjure up a truthful picture of its general appearance from the possession of the most elaborate plan. I am prepared to concede that a plan helps one scarcely, if at all, with the planting of a garden. Nevertheless, I venture to assert that he must be a most accomplished garden maker who would dispense with a plan in the laying out of any except quite a small extent of ground. It is true that one cannot lay out a garden as one would build a house; a plan is less essential to a gardener than to an architect. The latter is able to give a design showing exactly how the house will appear when complete, but the gardener, if he work with a right conception of his craft, can do no such thing. What a plan, I think, can and does do is to enable one to make the most of the ground at disposal. Moreover, it engenders ideas. It enables one to consider the project well. A design on paper is easily altered, but "when even a sod is turned, time and the cultivator's art alone can put it right again."

Garden making is one of the last things one would wish to do hastily; mistakes so easily made are not so readily remedied. It is a most excellent thing to plan out the garden in fancy, time after time, and to transfer one's ideas to paper and preserve them in the form of a plan. This it seems to



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me is to be preferred, at any rate by those who are not proficient at garden planning, to the alternative of materialising one's ideas directly in the form of borders, beds and walks on the ground. In studying well the ground to be laid out, many plans will suggest themselves. In one's fancy a rose garden rises here, a flower border there, a little water garden somewhere else, and so on. They should all find a place in the plan; then, when one has become acquainted with the ground, with its outline, its hills and hollows, its dry places and damp places, its sunshine and shadow, its heavy soil and light soil; when the plan has been designed and redesigned, and each feature is arranged so that it forms an integral part of the whole design, not merely a design unto itself, then and not until then should a start be made. No garden can grow old gracefully unless it is made gradually, and I suppose we all admit that there is no garden like an old one that was carefully begun. It is only when by working in it one gets to know and feel a real affection for the garden that one is able to make the most of it. Thus the work of garden planning is at the best only an initial work, and should never pretend to anything like completion.

It is not usual for the garden to have prior consideration to the house. Commonly the reverse is the case. Then the house assumes an importance in the garden scheme which, perhaps, it scarcely deserves, but which it must necessarily possess. The best place from which to initiate the garden design is the house itself, or some spot in close proximity, since the house must be the pivot upon which the design is hinged. Scarcely less important than the aspect of the garden from the house is the appearance of the house from the garden. This, too, needs to be well considered, for it is a factor that will largely enter into the schemes of the planter and influence them accordingly. Some of the most charming of all garden scenes are those in which the house plays a part. There is something wanting in a garden view which is of flower beds, trees and shrubs alone. There is always the savour of a public park about it, a lack of homeliness, a sense of void. The impression is difficult to define, but there it is. In a perfect garden scene there must be a glimpse of home, for neither seems itself without the other. It need only be a sight of mullioned window, of gabled chimney, of rustic porch; it does not very much matter what, providing it is not obviously incongruous, so that it gives just the touch that welds home

and garden into one. By ensuring frequent glimpses of the house from different parts of the grounds an impression of infinite variety is created, whereas a similar extent of garden without such features might easily become monotonous.

That part of the garden immediately about the house is most important, and should receive the first care at the hands of the designer. Its treatment will naturally depend upon the character of the house and upon the "lie" of the land. The aim should be to make it as natural as possible; that is to say, in keeping with its surroundings. This, it seems to me, is the true significance of the word "natural," which is so often and erroneously used to express something that is wild, free, totally opposed to artificiality. It is not necessary to make a wild garden to have a natural one, neither is one obliged to fill a field with Buttercups and Daisies to plant it naturally. In fact, it would be quite easy to do both these things and produce extremely unnatural results. The wild garden and the flower-field might be utterly out of place amidst their surroundings; in which case one could scarcely term them "natural" gardens. Let the reader then disabuse his mind of the sentiment so generally believed that a natural garden is one that is planted according to Nature's design in field and hedgerow, and that an artificial garden is necessarily one that is designed in formal fashion. The key to the matter is in the relation of the garden to its environment. Providing this is carefully studied and right conclusions are carried into practice, there will be little fear of unnatural effects. I was recently called in to advise as to the laying out of a garden in a land of Pine and Heather, Bracken, Gorse and Broom—a spot where flowering plants and ferns trespassed even on the site set out for the house. To make any attempt at formal gardening was, of course, out of the question. One could simply make clearings here and there in the wild growth for groups of noble shrubs and flowering plants and, gradually, on approaching the house, steal, little by little, still more and more from the rough growth of fern and flowering shrub, until finally one had space for lawn, and round about the house a few simple flower beds.

An excellent axiom for the inexperienced in garden planning is never to make a terrace unless the character of the ground is such that there is no help for it. The terraces that are characteristic of southern gardens in hilly



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districts are in perfect keeping, since there are reasons for them. The steps that reach from one terrace to another afford the easiest means of access from top to bottom of the hill, the terraces afford convenient flat surfaces for the exposition of garden flowers, while the walls support the soil. To construct terraces on flat ground not only results in incongruity of character in the garden design, but it is very costly work. When the ground falls sharply away from the house a terraced wall is quite in keeping, and provides the gardener with an extent of flat ground for beds or borders of flowers—ground on which it would have been difficult to have flowering plants at all. But even when the house is so situated its character needs consideration. A house of formal design, of stiff outline, a house that seems to stand aloof from the garden, is well suited by such a formal terrace. But a long, low house of softened outline, a house that merges readily in the garden, such as this would appear hideous if fronted by a stiff, stone terrace wall. Banks, grass-covered or planted with Ivy or St. John's Wort, and topped by a low railing trailed with Ivy, would be quite in keeping and would lead naturally and without discord from the garden to the house.

Simple beds of flowers so planted as to be attractive for as long a season as possible are best to have about the house, and I do not think they can be filled to greater advantage than with Roses. One would naturally choose those that continue to bloom far into the autumn—some of the Hybrid Tea, Tea, China and Bourbon varieties. Moreover, it is a simple matter to prolong the flower display by planting bulbs and other plants among the Roses. The Roses do not seem to mind, and there are plenty of suitable flowers that associate well with the Roses. One may choose from among many charming spring flowering bulbs; then, to put out when the spring blooms are over, there is, I think, nothing to surpass the Tufted Pansies or Violas, which flower throughout summer and until quite late in the autumn. I need scarcely go into further detail here, for the planting receives full consideration on later pages.

The highest points in a garden need special care in planting, for obvious reasons. In a Pine country one would choose, say, clumps of Scotch Fir; in a district of elegant woodland, the Silver Birch; in heavily wooded country, the Oak or Chestnut; in low-lying places, the Alder or Willow. It is

well, especially if the garden is not shut off from the open country, to have regard to the natural tree growth that prevails there, and on some of the high land, at least, to plant similar trees. No tree crowns a knoll more nobly than the Scotch Fir, but in a garden in low-lying country, especially with the latter showing in the distance, the effect of a group of this Pine, intensely dark and sombre in the mass, would create a bizarre effect, since it would be totally out of keeping with its surroundings. In a hilly country, on the other hand, where, even if it did not happen to do so, the Scotch Fir might at least be expected to show on the top of a distant hill, such a planting would be quite in character. High ground should not be planted with a mixture of trees; one sort only should be grouped on each little hill. A garden takes much of its character from the way in which its hills are treated, and to group trees there in higgledy-piggledy fashion is at once to create a discord in the landscape.

A simple design invariably gives the best results, and broad effects should be aimed at. A garden is quickly spoilt and made to look paltry if the owner attempts to make of it a *multum in parvo*, to do much in a little space, creating features for the sake of possessing them, without due regard to the general design and without considering whether they can be suitably placed. It is best to keep each characteristic feature distinct, for while, if separated or enclosed, each may be in keeping, yet, so arranged that all may be seen at once, unpleasant effects are sure to result. This is the fault of so many comparatively small gardens, say, of half an acre in extent; here the lawn is cut up to make a rose garden, there a rockery is formed, somewhere else a little formal garden or a hardy flower border. All are seen at a glance, and how utterly incongruous they are! Yet not only is there no good reason why a garden of this size should not possess features of this description, but there is every reason why it should. But their disposition must have careful consideration. As a rule separate little gardens, whether rose garden, paved garden or formal garden, are best enclosed, or, at least, kept out of the general view. If all the characteristic points of a garden are seen at once, there is bound to be a loss of interest, for there is then no cause for the joyful anticipation that ignorance conjures up.

Somewhere, not far from the house, certainly in view of the windows, there should be an expanse of lawn, for nothing



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gives character to a garden so effectively and so simply as this. Not only does it afford grateful relief from the colour masses of brilliant flowers, or the sombreness of tree clumps, but it accentuates the value of these, and allots to them their real value in the garden landscape. Trees, flowers and grass in just proportion are the three great materials at the disposal of the garden maker, and all are necessary to the painting of a successful picture. Just as a lawn is spoilt when cut up by the indiscriminate placing of flower beds, so trees and shrubs and flowering plants are debased when dotted aimlessly here and there. Planting can only be carried to a successful issue when the gardener realises the great value of masses or groups of the same kind of plant, and wide unbroken stretches of grass. Bold effects are to be obtained only by simple planting.

There is nothing to be urged against the making of flower borders with broad grass paths between, providing the finished scheme leaves no room for doubt as to the object in view. If, however, there is a doubt as to whether the designer intended to make a flower garden with grassy ways for paths or to plant flower beds on a lawn, then the result may be classed as a failure. If the lawn is thought to need any ornamentation, trees are perhaps the best to use. Clumps of such as the Silver Birch, Laburnum, Thorn, Copper Beech, Red Chestnut, Amelanchier, Double Cherry, Almond, or the most graceful of the conifers, the Deodar Cedar or glaucous Cedar of Lebanon—these are admirable for lawn planting providing they are placed in groups and disposed towards the margin of the lawn. Groups of flower beds should be arranged to form a garden, and not be disposed at wide intervals across the full lawn surface. It is well to have the rose garden within easy distance of the house, though it need not be within actual view of the windows, since, if we except the glorious blossomed climbing sorts, the rose garden is not seen at its best from a distance, but from a close view. There is no need to restrict the showy, climbing roses to the rose garden proper; they are admirable for pillar groups, for arches and arbours and for pergola planting in various parts of the garden.

It should be the aim of the garden maker, when the space to be laid out is small, to make it appear larger than it really is, and in every garden to create illusions. The Japanese have brought this work to great perfection, but by the use

of such methods as scarcely commend themselves to the taste of garden lovers at home. We prefer to obtain effects by the exercise of different methods. Nothing creates an impression of distance so successfully as the planting of an avenue, if care is taken to choose trees of slender form. Quite a limited piece of ground may, in this way, be given an exaggerated extent. Trees of slender pyramidal habit of growth give this effect most readily, and there are many from which to choose. Prominent among them by reason of their naturally slender form are many conifers. The Italian Cypress is the most graceful and suggestive of all, and rarely as it is planted in English gardens, it is nevertheless suited to avenue planting in this country and thrives. The Earl of Plymouth's grounds at Hewell Grange, near Redditch, contain several fine specimens, yet Hewell is some four or five hundred feet above sea level and the winters are severe. The *Libocedrus decurrens* is another tall, slender conifer suited to avenue planting; there are also the Irish Yew and its several golden and variegated forms, varieties of Lawson's Cypress—notably *Allumi*—but none of them has quite the charm of the Italian Cypress. Then of course the Lombardy Poplar is a first rate avenue tree.

No garden possesses the real charm of distance and the variety of effect that distance gives unless its surface is undulating. Though illusive planting on level ground may delight the uninformed in garden craft, it rarely deceives the experienced eye. It is thus well worth while to throw up little hills where none exists, for rising ground is not only a valuable asset to the designer but the valleys which are thus produced give scope for effecting pleasing contrasts in planting, and at once add variety to the landscape that is both welcome and natural. Trees with white blossom show quite clearly in the distance, but for the creation of illusive distance blue and rose colours are the best to use, since they merge most readily in the surroundings and deepen the illusion of atmospheric haze. Trees with light green or glaucous leafage have the same value. These are aids to planting when it is wished to create an impression of distance. When dealing with a larger garden, when distance has not to be created but merely impressed or accentuated on the mind of the onlooker, then shades of rich colour such as red or yellow give the desired effect.

Well defined views in a garden are all important, and their



DAFFODILS GROUPED IN THE GRASS. BATSFORD HOUSE SHOWS THROUGH THE TREES.

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value is increased if the distant objective is, as it were, thrown into relief by a strong foreground. A glance at the illustration of Batsford on one of the pages provides an example. Without the tree and Daffodil groups in the near foreground, the view of the house would lose its charm. It would merge too readily in the landscape; as it is, the eye, on leaving the bold tree and flower group, experiences a fresh pleasure derived from a distinct impression upon sighting the house. Such planting is especially necessary when water figures in the foreground, and can be carried out with even more pronounced success, since the reflection of the colours on the water surface adds still greater emphasis to the near planting. Perhaps the simplest way of creating illusive distance in a small area is, at the end of the garden to throw up a gradually sloping bank, and to plant this with groups of tall, slender trees, with shrubby undergrowth, leaving occasional vistas at the extreme end through which a view of sky above the tops of far distant trees is obtained. This is a subtle aid to illusive planting. There is nothing finer for the skyline, the summit of the bank, than some of the Firs, preferably the Scotch Fir, whose fine, bare, rugged stem and head of leafage are then admirably placed. Great masses of Daffodils, in naturally disposed, tapering groups, that seem to be creeping up the hill-side, accentuate the effect. If the aspect of the garden allows of it, such a planting should be on the west for the sake of the glorious sunset effects through the sombre Pines, rendered more striking still as they will be by the comparative darkness of the hill slope in shade.

Glimpses, whether of sea or sky, house or meadow, have great power of suggesting distance. The vision is naturally concentrated instead of spread as in an open space, with the result that the eye sees farther afield. I have already referred to the charm that invests the garden landscape when a casual sight is obtained of parts of the house. Equal delight arises from a glimpse of the sea in shore gardens, or of distant hills or country in inland gardens. The effect of distance is merely suggested, and it is not wise in garden planning with a view to illusion to do more than suggest or the spell may be broken. To plant an avenue or vista and not to arrange for an object at the end of it is to miss a splendid opportunity, for this concentrates the vision at the extreme limit of the walk or drive, and so the most is made of its length. Without

some object the avenue loses its charm and the planter his opportunity. Whether the object be a summerhouse, statue, fountain, or part of the house itself is a matter for the designer to consider, with due regard to the demand of the surroundings. The object in view is, however, equally well achieved in an avenue of some length by an open view of sky or country without distinct or outstanding characteristics, as, for instance, moorland, heather-covered, and fading into the blue haze of distance, or an open landscape on which a distant church shows prominently. In each case a far objective is provided.

There should be a right conception of the comparative value of straight lines and curves. There is beauty in a straight line but its too frequent use in garden making has a depressing and monotonous effect. When excessively employed the garden lacks freedom, and joyousness—it is too restrained. "Symmetry too exact is a characteristic of dead rather than living things." The cold repellent effect of the straight line is seen most clearly in long straight, gravel walks, unrelieved by marginal planting. It is largely owing to the nature of their walks and paths that public flower gardens lack homeliness and charm. The edges are generally harsh and often defined by ugly (though no doubt necessary) barriers made of iron or wire. Contrast for one moment the effect of a flagged path upon which free growing hardy flowers are allowed to trespass and that of a gravel walk, its boundaries defined by iron railings. A long, straight grass walk is infinitely more soothing and pleasing than a long, straight gravel walk—its margins are softened, it lacks the cold dead surface of the latter.

Much may be accomplished in the way of giving life to set designs, such as squares, oblongs, necessarily intersected by long straight walks, by a careful planting of the corners or points where the walks meet. An arrangement of formal flower beds with straight edges alongside a broad gravel walk does not tend to ameliorate or lessen the monotonous tone of the edge. Rather is this accentuated, as may readily be seen in almost any public garden, *e.g.* at Kew, along the Broad Walk. Here it seems that a far better effect would result if the bold groups of shrubs that lie behind the formal beds of flowers were enlarged and allowed by simple natural grouping to approach the walk. In a small garden, as a rule, while the borders and flower beds should be of formal



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line, it is not advisable to have straight walks, for a straight walk has no beauty when it proceeds only for a short distance, and in a small garden it is unsatisfactory because it exposes all the garden at once. It is scarcely expedient, perhaps, to pursue this subject further, since general remarks on garden planning can scarcely be of much real value. In laying out his garden each worker must put into practice his own ideas. The best one can hope to do is to indicate the lines on which those ideas should progress.

CHAPTER IV

GARDEN PATHS AND EDGINGS

As a man is judged to some extent by the cut of his clothes, so is the beauty of a garden appraised, in part, by its paths and the margins. One may even spoil an otherwise attractive garden by unkempt, untidy paths, and by neglecting to clothe the margins with an appropriate edging. Most seductive of all paths are those of grass; none so well shows off the beauty of the flowers, but, alas! grass paths have the great disadvantage of getting unpleasantly wet in winter. It is true that gardens are not then, as a rule, inviting, except to the real enthusiast; still, if one does wish to "see how things are getting on" in the dull season, it is nice to be able to do so in comfort and with a dry path for one's feet. Narrow grass paths are not so satisfactory as wide ones. The sward is soon worn, and as one is obliged continually to walk upon the same track, bare patches result that quite spoil the charm of the path. The grass path differs from most others in that the wider, in reason, it is made the more attractive it becomes, and it is difficult to imagine a prettier garden picture than a wide grass walk between borders filled with hardy flowers. However, there is much to be said for paths of other kinds, and those who love to see an irregular margin about which little trailing plants may throw their leaves and flowers, and those whose garden is small, will doubtless find a keener interest in paved and gravel walks.

Paved Paths are very delightful; they are made with either bricks or large stones. Personally, I think bricks are the more attractive. However, there is much to be said for both. To ensure their being dry during winter a layer of ashes, some two inches thick, should be placed beneath the bricks or stones. Some gardeners, who count neatness as of the first importance, cement between the stones, but I think this takes away from the charm of the paved path. I would rather leave a space of half an inch or so between each brick or stone,



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even if no tiny plants were grown in the chinks. In either case, whether cemented or not, paved paths are more attractive than gravel paths, and are becoming more common in gardens every year. They are particularly suited to small gardens, and for this reason are largely made use of in rose gardens, herb gardens, and formal flower gardens that form one of perhaps several features in large pleasure grounds. In gardens of quite small extent, such as those in suburban districts, they are strongly to be recommended. They give at once an air of distinction. Although the paved paths are fairly expensive at first, the first cost is also the last if they are well laid. There is no annual covering of gravel needed, there is no trouble in keeping them tidy, and as for wear, they last for generations, and the older they grow the more attractive they become. Old bricks can often be bought cheaply, but new ones cost only about thirty shillings a thousand, and in a narrow path a thousand go a long way. There is no prettier margin to a brick path than a row of bricks set edgewise. I assisted lately in the making of a paved path for which large flat stones were used, just such as are employed in making pathways by public roads. The path is some 40 feet long, and the stones, which were old ones, taken up from a pathway, cost only about a sovereign. They were not whole, but broken into variously shaped pieces, so we were saved the trouble of doing this. It would, of course, have been unpardonable to put them down in great square pieces. They would have been quite void of the old-world character that is the chief charm of such a path as this. The fitting-in of the various pieces, without, of course, aiming at any pattern, was quite a pleasure. A layer of ashes was first placed on the brick-ends and large stones of the foundation, and the stones were laid about half an inch from each other. In the spring seeds will be sown of the Violet Cress that will come up in the chinks, with its pretty leaves and tiny lilac-coloured flowers, and add greatly to the charm of the path. The other day I came across quite a novel kind of path—at least it was new to me—and I mention it so that readers may take warning and not go and do likewise. Red tiles were used. They were broken into pieces and cemented together, with the result that the path had rather the appearance of a tiled hall than a garden walk. The owner's intentions were doubtless good; he had, I suppose, got tired of the eternal gravel path. If only he had put down bricks instead of tiles, how great an

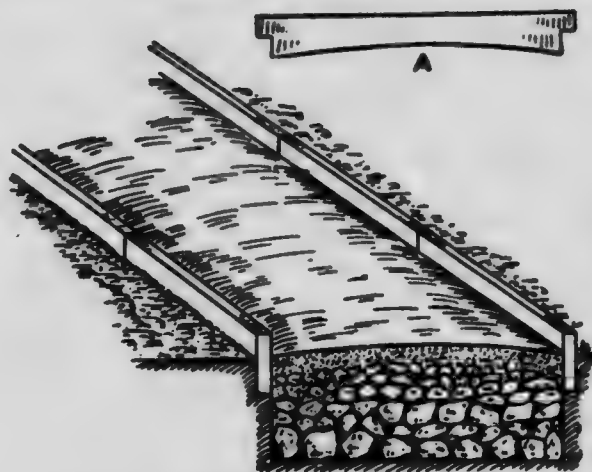


Fig. 1.—A properly made Path with Stone Edging.

the accompanying sketches to give point to this direction. A gravel path that has no foundation of brick rubble and large stones will always be unsatisfactory, unusually wet and unusually sticky in winter, and full of weeds in summer. The ground should be excavated 12 inches deep if the soil is clayey; rather less will do if it is naturally light and well drained. Upon the foundation of brick ends and big stones, smaller stones are placed, and these are well rolled down. Then come about 3 inches of rough gravel, again well rolled; then, finally, 3 inches of fine gravel that has been passed through a screen. The walk should be higher in the middle than at the sides, so that in wet weather water may fall away. One can scarcely roll it too much, except, of course, when the gravel is wet and sticky and clings to the roller. The best time to make paths, at any rate gravel paths, is in early autumn before the heavy rains set in, or in

improvement would have been effected!

Gravel Paths.

—What can I say of these, except to compare them unfavourably with those that are paved or of grass? Nothing, indeed, but to point out how important it is to make a good foundation. I

shall rely upon

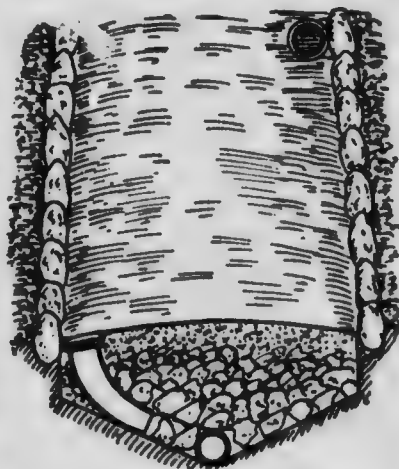


Fig. 2.—How a Path is made on Wet Ground.



A WINDING WALK IN A CORNISH GARDEN, WITH DRACÆNAS ON
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HOW TO MAKE PATHS

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spring, say March, when the worst of the wet weather may be expected to be over. Unless the gravel is frequently rolled, a firm hard surface will not be obtained. Fortunately for the appearance of gardens, asphalt paths are not commonly made. They are ugly in themselves and detract from the appearance of the flowers. Among what one may call "fancy" paths, most popular are those of Heather and of Thyme. The common Ling (*Erica vulgaris*) is the best of the Heaths for this purpose, and the common Thyme for Thyme paths. Both may be put down in October in soil that has been well dug; the plants must be placed closely together, say 6 inches apart, so that a well filled path may soon result.

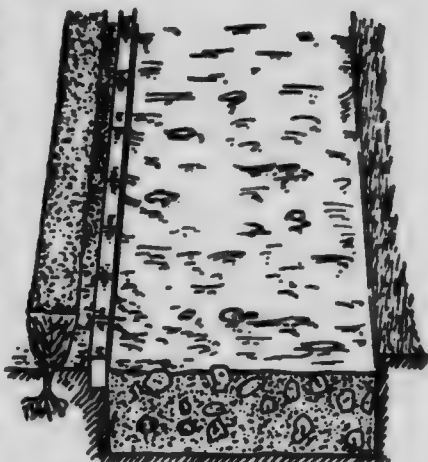


Fig. 3.—A Path badly made.

Fig. 1 illustrates a properly made path with stone edgings. A good foundation is provided and the surface of the path curved sufficiently to throw the water to the sides, where it should be able to get away through the spaces at the joints in the edge-stones. A shows a board curved on the underside to the required contour of the path and, by running it

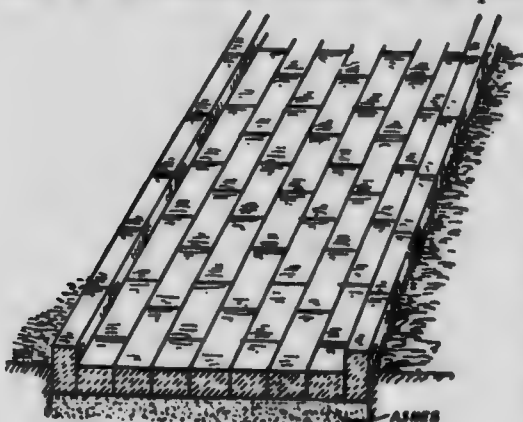


Fig. 4.—Brick Path laid on Ashes.

along the path, surplus gravel or fine material can be removed and uneven places filled. Fig. 2 shows how to make a path where the ground is very wet and it is desired to drain away the surface water. The bottom of the excavation slopes towards the centre, along which agri-

cultural drain pipes are laid, whilst at intervals of about 20 feet on opposite sides of the path, an ordinary drain pipe bend, having a socket fitted with a grate at one end, is arranged to conduct the surface water towards the centre

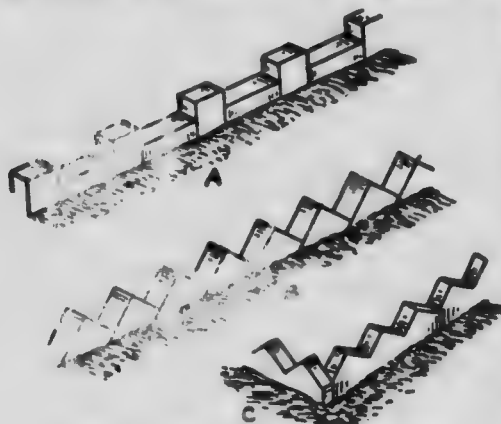


Fig. 5.—Various Forms of Edging.

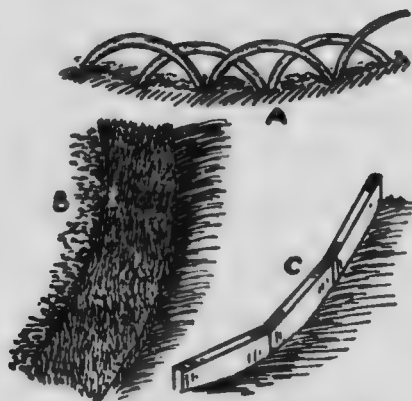


Fig. 6.—Edgings suitable for Winding Walks.

drain. The edging in this case is formed of rough flints. Fig. 3 illustrates a badly made path, a fair quantity of large material being mixed with the small, with the result that the large stones work their way above the surface, the path becomes uneven and full of hollow places and very untidy in appearance. A grass edging

is shown at one side and ordinary bricks and well trimmed box plants at the other. Fig. 4 illustrates how to make a path with bricks laid flat on a bed of ashes spread over the foundation. Fig. 5 shows, at A and B, two ways of forming edgings with ordinary bricks, whilst C shows one of the simplest forms of tiles that are specially made for edging purposes. Fig. 6 shows three edgings for curved walks, A formed of wooden or iron

hoops; B, grass edging 10 or 12 inches wide; and C, ordinary stone garden edging in comparatively short lengths.

Path Margins.—Among edgings, the least satisfactory are those of wood. Tiles are only to be tolerated in the kitchen garden, while rough stones are delightful and make even a gravel path attractive. They offer such an excellent home for edging plants. Box edging is often used in the kitchen



APRIL FLOWERS. AN EDGING OF THE TUFTED ROCKFOIL (*SAXIFRAGA*
HYPNOIDES) IN A SUBURBAN GARDEN.

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garden, and it is appropriate in little formal gardens when the paths are of gravel. Among the best perennial plants suitable for edgings are Thrift, white Pinks, especially the old and favourite variety Mrs. Sinkins, Evergreen Candytuft, Snow in Summer (*Cerastium tomentosum*); Ivy, pegged down; the lovely blue *Gentianella*, used freely in the gardens at Madresfield Court, where it thrives without any special care; Tufted Pansies or *Violas* in innumerable colours; the yellow *Alyssum* or Madwort; the Tufted Saxifrage (*hypnoides*); Rock Roses (*Helianthemum*) in light soil and a sunny spot; London Pride (*Saxifraga umbrosa*), not excelled for a shady border; St. John's Wort (*Hypericum calycinum*), most suitable for a shrubby border; the Indian Crocus (*Zephyranthes*), a pretty little bulbous plant with dark green evergreen leaves, and in summer white Crocus-like flowers, thriving well in shade but flowering most freely in sunshine. This does not bloom much for the first year or two after planting, and when established should not be disturbed until really necessary. Then, finally, I have to mention the Musk, charming for a shady border, quite hardy, but, alas! leaf-losing. There are many annual flowers suitable for sowing as an edging; for instance, Virginian Stock, Sweet *Alyssum*, and its dwarf varieties, Candytuft, dwarf *Nasturtiums*, the Soapwort (*Saponaria calabrica*), and both the blue and the white Woodruff, suitable for the border in the shade.

Whether paths should be preferably made straight or winding is, of course, largely determined by the character of the garden, and also by the inclinations of the owner. Most people, I think, find more beauty in a winding path than in a straight one, but I am not sure that that point of view is the correct one. A winding path should only be made when its curves can be hidden, for the whole *raison d'être* of a winding path is that it shall wind because of some obstacle that sends it out of its course. To make a winding path in a garden, the whole of which is exposed to view, is ridiculous in the extreme and surely represents the very last word in wrong garden planning. If, then, your garden is small and one glance takes it all in, either have straight paths or, if you must have winding ones, put up an obstacle at each corner in the shape of a rose-covered trellis or arbour, group of shrubs or something else equally attractive. There is, I think, greater charm in a walk that winds with a purpose than in a straight one, but if there is no method in its winding

then choose the straight path. A small garden can be made to seem larger than it really is most simply by transforming straight paths into winding ones; but above all things, hide the corners, or the last phase of the garden will be far worse than the first. Straight paths are most necessary in the kitchen garden for convenience of working and to enable one to make the most of the ground at disposal, for a winding path has an awkward habit of wasting space. Rather should I say, perhaps, of taking up a lot of space, and when garden room is none too plentiful this is a point not to be lost sight of. A convenient width for paths for pedestrians is 4 feet; in any case they should not be less than 3 feet wide. I say *should* not, but in my own garden I have paths only 2 feet wide, but this is just because I value border room so much that I have robbed the paths of their rightful share of space. Walks and drives intended for carriage use ought to be at least 10 or 12 feet wide, and this width does not allow of one carriage passing another. Fifteen feet should be the width when it is necessary to allow for double traffic. I have already pointed out how necessary it is to have walks rolled frequently to ensure a hard surface. It is none the less essential to have them kept clean by sweeping, for an untidy walk detracts greatly from the attractiveness of the garden. Weeds are a great nuisance in a gravel path, and hand weeding is at the best a tedious business in these progressive days, although, if begun early in spring before the little weeds have a chance to become big ones, it is effectual. A better way, however, is to apply weed killer (there are now many preparations on the market), or agricultural salt. The latter has the advantage of being harmless to animals. But whatever method is employed to get rid of weeds, it is important to begin as soon as they show themselves, for the annual sorts grow very quickly, soon come into flower, shed their seeds, and start a fresh generation of plants.

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CHAPTER V

FAVOURITE HARDY BORDER FLOWERS

ALL the plants named in this and the following chapter are invaluable to the gardener. Once well planted in good soil, they come up season after season, and provide a splendid flower display, with little or no further attention on the gardener's part, beyond an annual dressing of rotted manure spread over the border in early March and mixed with the surface soil by means of a garden fork. Unless otherwise stated, the best time to plant is in late October and throughout November. However, planting is frequently carried on throughout the winter and until the end of March or early April. The great value of planting in early autumn is that the plants have an opportunity of becoming well rooted before winter. Still, the plants are hardy, and, providing the weather is mild and the ground neither frozen nor sodden, winter planting often turns out well, especially on light land. If planting is not completed by the end of November or early December, it is as a rule wiser to wait until late February or March. Many of these hardy perennials are of vigorous growth, and are apt to become crowded with stems; the finest flower display is obtained when a few of the shoots are cut out. This has especial reference to Aster (Michaelmas Daisy), Phlox, Delphinium, Helenium, Helianthus, and other strong growing kinds. The amateur often makes a mistake in planting too thickly, with the result that there is not proper space for the plants' development, and they crowd and spoil each other. A good average distance to allow between all that grow three feet high or more is 24 inches. In this chapter I have grouped together a few of the chief favourites among hardy border flowers, so that they may be easy of reference. Others, many of which are less commonly grown, will be found in the succeeding chapter. Included among them are many handsome flowers.

ACONITUM (*Monkshood*).—The first point of interest to know about the Monkshood is that its roots are poisonous, and that they resemble

those of Horseradish. It is as well to indicate the difference, and insist that the Horseradish bed be kept far enough away from the border where the Aconites are grown. The root of the Monkshood tapers to a point, and the colouring is brownish outside and white inside; that of the Horseradish is of cylindrical form, and both inside and outside of yellow-white colour. The Monkshood is not exactly a showy flower; its colour is too dull for that, but compensation is found in the fact that the blooms come late in summer. Those of the common sort (*Aconitum Napellus*) are at their best in August and early September, while other sorts bloom well even into October. It is the reverse of fastidious as to soil and treatment; it seems to do well even on a dry, neglected border, and in the shade it is happy enough. These are the chief sorts of Monkshood:—*Napellus*, dark blue; *Lycotomum*, creamy yellow; *versicolor*, blue and white. *Autumnale*, *sinense* and *Wilsoni* are the latest sorts, all with blue flowers, *Wilsoni* being exceptionally good.

ALTHEA ROSEA (*Hollyhock*).—Some twenty years ago the late Shirley Hibberd wrote, "The eclipse of a grand garden flower must be reckoned as a domestic calamity, and this we have had to endure in the case of the Hollyhock. But an eclipse is only a temporary obscuration. . . ." And so it has proved to be, for Hollyhocks are fast regaining the popularity that once was theirs. The dread disease that played such havoc with this noble plant in the "eighties" and "nineties" no longer alarms us, for we know that if the plants are raised from seed they have little to fear from *Puccinia malvacearum*, the fungoid malady that once threatened to sweep the Hollyhock from English gardens. The only fault that I have to find with the Hollyhock is that it gets unsightly quickly after the blooms are over, before even the last of them are out. But this is an objection that might readily be urged against many other favourites, so it is of little worth. It cannot be gainsaid that the Hollyhock is a noble border flower, and no garden seems complete without a few clumps of its towering flower stems, showing above the other plants. There are, as everyone knows, single and double varieties, and as to which are preferable is quite a matter of individual taste. Personally, I prefer the double sorts, with their handsome rosette-like blooms that make a finer and more lasting show than the singles. Although some few firms still make a speciality of named Hollyhocks—e.g. Messrs. Webb and Brand, Saffron Walden—it is usual now to grow seedlings or unnamed sorts and, as with so many garden flowers, the resulting plants give blossoms as fine, generally, as named, expensive varieties. If one is anxious to increase the stock of any particular sort this is done by cuttings taken in August and made to form roots in pots of sandy soil on a hotbed in a shaded frame. Or in September one may detach rooted pieces from the base of the plant, pot them and keep in a cold frame through the winter. If seed is sown in January in a warm greenhouse the plants will bloom the same year, in August.



A LITTLE FORMAL GARDEN.

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The seedlings make quick progress, and when about an inch high it is best to pot them singly in small pots. As outdoor warmth increases, they may be moved to a cooler temperature and placed in a frame, there to be grown on with plenty of fresh air, but with protection from frost until late April or early May, when they are put out in rich ground. If no warm greenhouse accommodation exists, the seed may be sown in a frame in April, or outdoors in June; the plants will then bloom next summer. In September they are put out where they are to flower. Hollyhocks are rank growing plants, and need a rich soil to enable them to make quick growth. They need also sunshine and an open position to be seen at their best. If grown so that their stems are surrounded by other plants the lower leaves fall off, leaving bare, unsightly stalks. In the mixed border, however, they are necessarily somewhat shut in at the base, but neighbouring flowers will hide their bareness. Copious supplies of water are essential in dry weather, and lack of moisture at the root soon tells a tale in the shape of scorched leaves and bare stems. Although the Hollyhock disease has lost almost all its terrors, it may be well to give a remedy. This is found in spraying the plants several times during spring and early summer with potassium sulphide, 1 ounce to 3 gallons of water. During the first season of blooming the Hollyhock throws up one flowering stem only; in succeeding years the stems are more numerous, but they do not grow so high. It scarcely seems necessary to mention named varieties, when a collection of plants from seed gives splendid flowers in many colour shades.

ALYSSEUM (*Madwort*).—Everyone knows, I suppose, the rich yellow bloom masses of the Madwort, or yellow Alyssum, that make the borders and rock gardens so bright in April and, with the purple and white Rock Cress (*Aubrietia*), provide such a rich colour display. It is an indispensable spring flowering plant, and for forming masses near the front of borders it is invaluable. It flourishes in light and languishes in heavy soil; in clefts between rocks in the Alpine garden it is quite at home, so if we would have it in the flower border, let us provide it with at least a well-drained soil. Then it will spread into charming tufts that in spring are smothered in blossom. The yellow Alyssum is readily increased by cuttings taken in July, dibbled firmly in sandy soil on a shady border, and covered with a handlight. They will form roots in three or four weeks, and the handlight may then be removed. All they need is an occasional sprinkling of water through the syringe. A very charming variety of Alyssum is one called *citrinum*. It is a counterpart of the rich yellow-blossomed sort in all except the colour of the flowers; these are of deep sulphur colouring, and are very beautiful. Another, called *compactum*, lacks, I think, the graceful habit of the common yellow sort. There is a double-flowered variety, *flore pleno*, and one called *argenteum*, with leaves of silvery grey shade. Both these have rich yellow blossoms. *Argenteum* blooms later than the others—in June.

ANCHUSA (*Alkanet*).—The Italian Alkanet provides an instance of a plant that has gained wide popularity in a short time, owing to the advent of several beautiful new varieties that are a great improvement upon the original type. It is one of the very best of all blue-flowered hardy plants, and probably comes next in value to the perennial Larkspur. *Anchusa italica* is the common Italian Alkanet, but no gardener would grow this when, as now, he can obtain such brilliant varieties as the Dropmore, deep blue, and Opal, light blue. They grow from 2 to 3 feet high, and in late July, when the Larkspurs or Delphiniums are getting over, they make a brilliant bit of blue. They are seen at their best when massed in a bed away from other plants, as, for instance, on the edge of a lawn. There, and especially from a distance, their distinct blue flowers, which are freely produced, are most striking. The Alkanets like a well dug and well drained soil. To plant them in heavy, ill-prepared land is to court disappointment. Unfortunately, they do not appear to be true perennials; at any rate, in my own garden they fail to make an appearance after the second season, and I know that in other gardens they behave in the same exasperating manner. But there is an easy way out of the difficulty; one has only to dig up the roots in October, cut them up into pieces, about 4 inches long, plant these in flower pots filled with soil, place them in a cold frame for the winter, and plant them out in spring. The soil in the pots needs to be kept moist, but not wet; only give water when the soil is getting dry. It is astonishing how very quickly these little plants make splendid clumps; even by the summer they make excellent plants and bloom freely, although the year following they are better still. It is a great mistake to disturb them; this is the surest way of killing them outright. The roots are fleshy and easily damaged. Bees are particularly fond of the Alkanet.

ANEMONE JAPONICA (*Japanese Anemone*).—This is a flower that no garden can afford to do without. We are indebted to Japan for many favourite garden plants, but perhaps our indebtedness is greatest for this. There can be few who are unfamiliar with its tall and graceful flowering stems, rising well above the foliage, and often bending with a wealth of pale pink or white blossoms in September. Established plants remain in bloom from August until cut down by the autumn frosts. Not only is the Japanese Anemone a handsome border plant, but it is invaluable for home decoration when cut. In arranging the blossoms no foliage other than their own is necessary; none can be more effective. The Japanese Anemone thrives well in any ordinary garden soil, but the better it is so much finer will be the plants. The roots should be disturbed rarely, for at least two seasons will pass before the plants give a satisfactory return in the way of bloom. If, however, it is wished to increase the stock, this is done by dividing the root stock in late October, cutting it into pieces 2 or 3 inches long. Each should have a few roots, and if placed singly in small pots, kept in a cold frame throughout the winter, they may be planted out of doors



A PINK-FRINGED BORDER FULL OF BLOSSOM.

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in spring. This Anemone can be used in many positions with advantage. It makes an admirable display when filling a lawn bed, or it may be grouped in the mixed border, in the wild garden and shrubbery. It thrives admirably in a border facing north; it is in fact one of the best of all plants for a shady border. If a narrow border at the foot of a north wall be available, it could scarcely be filled to better advantage than with the Japanese Anemone. Slugs are fond of the leaves, and unless their depredations are checked by dustings of lime, soot, caustic soda, nitrate of potash, or by the use of one of the several advertised patent slug destroyers, they will quickly riddle the leaves with holes, and greatly disfigure them. There is scarcely a variety to surpass that beautiful white one called Honorable Joubert unless it is Queen Charlotte, rose shade. The ordinary rose-coloured sort (*japonica rosea*), too, is very beautiful. There are now several double-flowered sorts, but I do not care for them. They are altogether lacking in the grace that distinguishes the single flowers.

ANTIRRHINUM (*Snapdragon*).—This is a flower after the amateur's own heart, a flower that will not only grow as a good flower should, but one that once introduced into the garden is rather difficult to get rid of. As the blossoms fade you will think, "Oh, I can't leave this wretched plant for the winter, it is too untidy altogether." But the Snapdragon is evergreen, and a hardy border plant that keeps its leaves throughout the winter is not to be despised, so hesitate before you pull it up. Personally, I would rather pull it up in the spring after I had had the pleasure of its green leaves through the cold, dull weather, for a Snapdragon in its second season is not so gay a plant as it was the previous summer. Its appearance does not improve with age; it loses its beauty in a different way from the gardener who tends it. While the chances are he with age develops rotundity, the Snapdragon will undoubtedly become what is commonly and expressively termed "leggy." Although we may throw our old Snapdragons on the rubbish heap, that is not to say we have got rid of them altogether. Look well round the garden walks, in the crevices between the tiles that define the paths; look in all the most unlikely places you can think of and there is little doubt that you will find a few seedling Snapdragons. They are fine old flowers, and we can scarcely have too many of them. Last autumn I was in a Derbyshire village, and peering through garden gates and over garden fences as is my wont when on the tramp, I caught sight of one of the most beautiful flower beds I have ever seen so late in the year—it was in the middle of October. It was filled with Snapdragons still bright with blossom. Snapdragons are best treated as annuals. One sows the seed in the greenhouse in February, transferring the seedlings when large enough singly to small 2-inch wide pots, or several together in a large 6-inch pot. They are gradually hardened off by being first placed in a frame for a week or two, and finally, in April, are put out where they are to bloom. At least 12 inches space should be left between each one,

for by the summer they make fine bushy plants. They begin to bloom in late July, and last in bloom for two or three months. There are now some wonderful colour shades in Snapdragons, orange-red, pink, terra-cotta, lemon, yellow, and many others distinct and most attractive. Seeds of separate colours and even named sorts are to be had. There are three classes of Snapdragons—tall, growing 2 to 2½ feet high; intermediate, 1 to 2 feet; and dwarf, about 9 inches high. The last are the least graceful of all; they are too "dumpy" to be really attractive. They flower freely enough, however, and will please those enthusiasts who like to see "their flowers grow like sentinels on sentry go." It needs no heated greenhouse to raise the Snapdragon seeds; one that is unheated suits admirably, for providing it is in a sunny place, as soon as January is out it gets beautifully warm during the day, and if the windows are shut up early, before the sunshine is off them, it will keep fairly warm at night also. The Snapdragon, as everyone knows, loves a light soil, for does it not flourish in the crannies of old walls where there is scarcely nourishment for weeds? Ah! so it does; but that is not to say that it gives of its best in the old dry wall. It needs a well dug soil if it is to be had in full beauty, although it is inclined to sulk in one that is heavy and clayey. This, however, may be made more to its liking if it is dug 2 feet deep and leaf soil is mixed with it.

AQUILEGIA (Columbine).—In old-time gardens, Columbines or Aquilegias occupied a prominent position, for they formed one of the groups of hardy flowers which were cultivated when gardening was in its infancy. How different, however, were the Columbines of even twenty or thirty years ago compared with those of the present day. Then the Common Columbine, *Aquilegia vulgaris*, or some form of it, was usually met with. Of late years, however, the hybridist has given us garden varieties infinitely more beautiful. Not only is a great difference noticeable in the size of the flowers and length of the spurs, but the flowering period has been extended. The two species which have gone far towards the production of these new sorts are *caerulea* from N.W. America and *chrysantha* from New Mexico. From these, varieties with white, blue, red and yellow flowers have been obtained. Aquilegias prove most satisfactory when grown as biennials, and are valuable alike for groups in the herbaceous border, for beds in a prominent position, or for growing for cutting for decorative purposes. There is another use to which they may be put—that is, for growing in pots for indoor decoration. For outdoor cultivation any good garden soil is suitable, providing it is not wet and cold. May and June are the months in which seed is sown. If grown in pots, the seedlings must be potted singly into 3-inch wide pots when two or three leaves have developed. When the pots are filled with roots a shift into 6-inch pots may be given. This will suffice for flowering, unless exceptionally fine plants are required; then a further move into a 7-inch wide pot may be

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necessary. A compost of turfy soil, with a little well-rotted manure, leafmould and sand will suffice; but when the final pots are well filled with roots, liquid manure must be given once or twice a week. A cold frame is necessary for them, but plenty of fresh air must be provided. During winter, great care must be taken with watering and ventilation, otherwise the leaves will suffer from damp. When the flower stems appear, the plants may be transferred to a greenhouse and brought on gradually to blossom in March. By exercising a little care in introducing the plants to warmth, an extended flowering season may be obtained. The plants grown out of doors must not be planted too thickly, at least 9 or 12 inches should be left between each two of the stronger kinds. Some of the species not generally grown are worthy of attention for the rock garden and herbaceous border. A few are rather delicate and require constant attention to prevent their dying out, but others are capable of looking after themselves for a number of years. Though frequently treated as biennials, it does not follow that they belong strictly to that group, for many are really perennials.

Good species or wild types are: *alpina*, a dwarf European plant, with blue and white flowers; suitable for the rockery. *Cærulea*, a N.W. American kind, to which attention has already been directed, has large blue flowers with long spurs. *Chrysantha* has already been alluded to as a parent of some of the newer hybrids. It is a tall-growing plant with yellow flowers. *Glandulosa*: this is a Siberian plant, suitable for the rock garden or border. It grows about 1 foot high, and has blue or sometimes white flowers. Unless carefully attended to and given a well drained position with good soil, some difficulty may be experienced with it. Like some of the other mountain kinds, northern gardens appear to suit it better than those in warmer countries. *Moorcroftiana* is a Himalayan plant, which grows but a foot or so high. It is suitable for the rockery, and bears blue and white flowers. *Olympica*, an Oriental Columbine, has pretty, light blue flowers. *Pyrenaica* is a charming plant of quite dwarf habit from the Pyrenees. Its flowers are of various shades of blue. *Stuartii* is considered to be a hybrid. It has dark blue and white flowers, and is suitable for rock garden or border. *Vulgaris*, the common kind, is adapted for naturalising in the wild garden, and may also be used as a border plant. There are many forms with different coloured flowers.

For garden purposes, packets of seeds may be obtained from any seedsman. Good sorts to ask for are: *cærulea hybrida*, violet and white; *californica hybrida*, blue and yellow; *caryophylloides*, striped; *chrysantha*, yellow; *chrysantha alba*, white; *Skinneri*, scarlet and yellow; *White Wings*, white; *Golden Spur*, golden; *Diadem*, mixed colours.

ARABIS (Rock Cress).—The single white-flowered *Arabis*, or Rock Cress, is one of those well-bred plants that are at home in the garden

of peer and peasant alike. In matters of cultivation it demands little more than to be left alone. While cottagers still pin their faith to the single-flowered sort that blooms beautifully in April and May but charms only with its evergreen leafy tints until spring comes round again, the connoisseur in plants discards the single and grows the double variety. Once this begins to bloom with the passing of the Daffodils, it seems not to know when to stop, and so we find it gay as ever at St. Swithin's, and still trying to be gay when frosts threaten. Its leaves, too, have the merit of persisting all the year round. There is no finer edging plant than the double white *Arabis* (*A. albid*); its rosette-like blooms on stems some 6 to 9 inches high are very beautiful and have not inaptly been compared with the flowers of the Stock. Shall I not coin a new flower name (as if there were not more than enough already!) and call it the Stock-flowered *Arabis*? There is a form of *Arabis albid* having variegated leaves, but it is not so valuable a garden plant as the double-flowered sort. How many, I wonder, have heard of the rose-coloured *Arabis* that rejoices in the glorious name of *Arabis blepharophylla*! I never had until last year, so I ordered a packet of seed in the spring and am now the proud possessor of some thirty seedlings which will, I hope, be coming into bloom when this volume is in the hands of readers. It is described as having rich rose-coloured blossoms. This, I believe, to be true, but I have my doubts as to its merits as a garden plant. It is not a new one, and surely if it had been really a good thing we should have heard much more of it before now. I am afraid from what I can learn that it is a "shy bloomer." Meanwhile I advise readers to buy a packet of seed and test it for themselves. The double-flowered *Arabis* (the single-flowered one, too) is most easily increased by means of cuttings taken off the plants in July, and inserted in a little bed of sandy soil made up on a shady border. They root in two or three weeks if covered with a handlight and moistened occasionally; they will even form roots with no protection at all.

ARMERIA (*Thrift*).—I am obliged to put the botanical names of the flowers first, otherwise I should preserve no sort of order in my book, but I feel that I owe the reader an apology for calling the old-time Thrift by the name of *Armeria*. It is, I think, my favourite edging plant; its tufted habit, its evergreen leaves, its rose-red, double Daisy-like blossoms that come in such numbers in June as almost to smother the leaves—these are characteristics that must surely endear it to all who make its acquaintance. Is there anything more absolutely bewitching in the world of flowers than an edging of fragrant white Pinks and rose-coloured Thrift? I don't believe there is. They both bloom together and so freely as if ashamed of having leaves, and wishing to hide them. Even when the flowers are over the leaves remain, week in and week out, until June comes round again—the cool, grey masses of the Pinks, the warm green tufts of Thrift. There is no need to give special cultural directions, for it has few likes and



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ices; its chief antipathy is to a cold, clayey soil while, on the contrary, it delights in one that is well drained. It loves the salt air, for is its home not within sound of the restless sea, and are its leaves often drenched with the salt spray? It may be increased any extent by dividing the tufts in October, replanting the pieces at 6 inches apart. In fact, it spreads so rapidly that replanting is sometimes necessary about every three years. Easily raised from seed? Not easily. But it can be done, so they say, and I do not doubt but luck has never been my way in this connection. Either I have had bad seed or I have treated it badly. Anyhow, it has never come. But try your hand, reader; you will probably have better luck. In boxes of sandy soil in June, placing them on a shady border, moist, and cover with glass, and you cannot do more. But, like a beginner at golf, you may succeed where the old hand fails. I must not forget to mention that the finest coloured Thrift is one called *Thrifta cuneata*; it has flowers of a deeper rose than the ordinary sort called *vulgaris*. There is a giant Thrift called *cephalotes*—quite a remarkable plant. It forms a tuft, but not such a neat one as the smaller kind; the flower clusters are larger, and they are on taller stems—12 to 15 inches high. This, curiously enough, condescends to grow from seed quite readily, and the seedlings are planted in the children's garden, for no matter what time of year they visit their little plot, between May and Christmas, they are pretty sure to find one or another of the giant Thrifts in bloom. Poor Thrifts! I feel sorry for them sometimes; they are roughly handled by baby fingers, and as one flower is pulled off another comes along, and so the merry game goes on.

ASTER (*Michaelmas Daisy*).—It must be very confusing to an amateur when, as in this case and it is not a solitary one, he finds that the same name is given to two totally different plants—totally different, that is, in general appearance and from the gardener's point of view. It is any consolation he may care to know that botanically they are alike. The Aster with large, bold flowers, chiefly in shades of blue, purple, pink and white that is so commonly used for summer bedding is a totally different plant from the Aster or Michaelmas Daisy. The latter is a perennial, and varies from 1 to 6 feet or more in height; the former is a half hardy annual that grows scarcely more than 12 to 18 inches high. For the moment we have only to deal with the Michaelmas Daisy, a charming flower name, and one to be thankful for. This is one of those rare cases where the popular name is of real value, and serves to clear up the muddle created by the botanist. Usually it is the other way about as, for instance, in the case of the name "Lily," which is applied indiscriminately to at least a score of totally dissimilar plants whose identity can only be established by the use of their botanical names. During September and October and even into November, the Michaelmas Daisies are simply invaluable. They are perfectly easy to grow if planted in

well dug soil in November or in March. The only thing that is likely to cause anxiety to the amateur is his choice of varieties, and there is such a bewildering number of sections and such a monumental list of sorts that to make a good selection is not at all an easy matter. Some of the best are :—*Amellus bessarabicus*, purple, 1½ feet ; *Beauty of Colwall*, double lavender blue, 4½ feet ; *Delight*, small white, 4 feet ; *Edwin Beckett*, pale lilac blue, 4 feet ; *Feltham Blue*, dark blue, 4 feet ; *Hon. Edith Gibbs*, pale lilac, 3½ feet ; *Keston Blue*, rich blue, 4 feet ; *Lil Fardell*, rose pink, 5 feet ; *Lily Wells*, pink shade, 2 feet ; *Maidenhood*, small white, 5 feet ; *Mrs. J. F. Rayner*, rosy red, 4½ feet ; *Mrs. S. T. Wright*, rosy purple, 5 feet ; *Peter's White*, the best pure white, 3 feet ; *R. C. Pulley*, very pale pinkish blue, 3½ feet ; *Rev. W. Wilks*, blue, 4 feet ; *Robert Parker*, lavender blue, 5 feet ; *Ryecroft Pink*, rich pink, 5½ feet ; *Snowdrift*, white, 2½ feet. The height varies in different soils, so that the figures given are only approximate. Climax is the best of recent novelties ; colour light blue.

CALTHA (*Marsh Marigold*).—This is a wild British plant that is probably more familiar in the streams and ponds of woodland and meadow than it is in gardens. But it is a good garden plant. I have never been so impressed with its charm as one May day a year or two ago, when in a garden near Harrow I saw a little pond with a golden margin—a margin of *Marsh Marigold*. The flowers in their profusion hid each other and seemed to vie between themselves as to which should have the honour of hanging over the water's edge, there to be mirrored—a duplicate margin of gold. It is almost superfluous to say that a plant with such a name should be planted in a moist spot, for no one would think of putting it anywhere else. They who are fortunate enough to possess a little pool or stream in their garden can plant the margins with nothing more appropriate than this wondrous wild flower. It will be a glorious sight on May day. The planter need not restrict himself to the use of the common golden blossomed sort, though perhaps there is none more worthy of garden room—he may choose from the double variety, with large and showy blooms ; *leptosepala*, with white flowers ; and *purpureus*, described as having purplish stems and orange-coloured blossoms.

CAMPANULA PERSICIFOLIA (*Peach-leaved Bellflower*).—This is one of the numerous hardy Bellflowers, and it is the best of all for the hardy flower border in early summer. June is the month that sees it at its best. It may be had in blue and white varieties ; it thrives in any well tilled soil, and needs to be left alone for several years to be seen at its best. Plants that are continually moved from one place to another never come to full beauty. It is a true perennial, and if undisturbed will increase from year to year both in size and charm. If the old flowers are cut off as they fade, the plants will continue to bloom for many weeks. The flower stems reach a height of about 2 feet. The finest of all varieties is one with large, white, semi-double flowers called *Moerheimi*. *Persicifolia* is the ordinary blue-flowered



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sort ; *alba grandiflora* has large, white, single flowers, very beautiful. Three new varieties, which are well spoken of, are *Coup d'Azur*, with double lilac-blue flowers ; *Die Fee*, large blue flowers ; and *Woodbridge Blue*, single-flowered, light blue.

CERASTIUM TOMENTOSUM (*Snow-in-Summer*).—This is an ideal plant for forming an edging to a garden path, or for massing at the edge of the flower border. It is hardy, it spreads rapidly, it has exquisite grey foliage, which, in May and early June, is smothered in lovely white blossoms—there's a string of recommendations ! What more can a plant do to please one ? It may be clipped with shears ; by doing so you keep it neat and trim and all that an edging plant should be, but, also, it must not be forgotten you prevent its flowering. You cannot have it both ways. One of the most charming flower pictures I have ever seen in a small way was formed by *Snow-in-Summer*. It was at Eastbourne, in a front garden ; the house was on high ground, and on either side of the wall leading to it were built low walls of stone supporting flower beds. The *Cerastium* was planted in the soil behind the top of the walls, and the silvery leaves and white blossom had let down a curtain that veiled the stone and reached even to the ground. Ah ! those suburban gardens ! Much as they are derided, they sometimes teach us beautiful lessons, and this is a case in point. There are other *Cerastiums*, but there is none more beautiful than this. To increase one's stock it is only necessary to take cuttings, about 3 inches long, as soon as the plants have finished blooming, and insert them in sandy soil beneath a bell-glass in a shady border. They will soon form roots, and the bell-glass may be removed in three or four weeks' time. They are left undisturbed until September when they are planted out where they are to bloom.

CHRYSANTHEMUM MAXIMUM (*Shasta, or Ox-eye Daisy*).—Probably every amateur is familiar with those large, white, Daisy-like flowers that make such a brave show in the garden in July and August. Yet if you talk to them about summer flowering *Chrysanthemum*, this is not the plant they have in view, but the ordinary early blooming varieties of the autumn *Chrysanthemum*. This is a case in which the popular name conveys a better impression to the uninitiated than the correct name does. The *Shasta, or Ox-eye Daisy*, is a fine plant for those who have little time for gardening ; it is almost needless to give details of cultivation, because it will grow in almost any kind of soil. The only fault that I have to find with it is that it grows too rampantly—a small clump planted in the autumn will be a big clump by the end of the following season. It is decidedly an aggressive plant, and if care is not taken, will quickly usurp more than its rightful heritage of soil. Obviously then, it is a plant for the amateur who likes to get a maximum return for a minimum of labour. There are now some very handsome varieties of this plant, all growing about 2 or 2½ feet high. A favourite one of mine is called *William Robinson* ; it has more graceful and more elegant flowers than some of the others,

which are inclined to be somewhat coarse. Other handsome sorts are Mrs. Lothian Bell, which has the merit of flowering earlier than the others, and King Edward, the most vigorous of the lot. Mrs. C. H. Daniels is also a particularly good variety. All have large, white flowers that are invaluable for cutting, since they are produced on long, stiff stems. When in good soil the plants keep on blooming until September. In a large border, where there is plenty of room for them to grow, they are admirable plants, but in a small garden a few go a long way. Plant preferably in October, or in mild weather, when the ground is not too wet, any time between October and the end of March.

DELPHINIUM (*Perennial Larkspur*).—It is often written of many beautiful flowers that they are indispensable; this is assuredly true of the Delphinium. Only when each plant is allowed to develop into a giant clump, as it will do in the course of two or three years, is this noble summer flower seen at its best. Some idea of the reward that awaits the patient and careful cultivator may be realised from the fact that Messrs. Kelway record and illustrate a plant bearing no fewer than forty-one flower spikes. The best results are naturally obtained from plants put out in well dug and manured ground. This is, of course, an old story, and applies with equal truth to all garden flowers. Those who plant Delphiniums in ill-prepared soil do scant justice to one of the noblest and most effective of hardy plants. A good average distance to allow between each clump is 3 feet. They make particularly fine plants on the edge of a lawn, and look best when massed; to dot them here and there in a mixed border is the least effective way of planting. Care should be taken to ascertain the approximate height of each variety before planting, so that dwarf sorts may not be hidden among tall ones. It is best to plant in autumn, in October and November. A finer display is thus assured the next season than if planting is deferred until March. The roots may, however, be put in the ground any time between, say, the middle of October and the end of March, providing the weather is not frosty or the soil very wet at the moment. One of the chief enemies of the Delphinium is the slug, which is especially fond of the young shoots. Some precautions should be taken against their depredations; the simplest plan is to cover the roots with ashes before fresh growth starts in spring. The plants are hardy and do not need protection. Perennial Larkspurs belong to that class of plants designated "gross feeders," so it follows that they need frequently soaking with water and with liquid farmyard manure during the months of growth, and especially if the weather prove hot and dry. Scarcely any hardy plant repays the grower more bounteously for such attention. To ensure a good harvest of blossom from the side shoots of the flowering stem the central bloom spike should be cut off when its beauty is past to prevent the formation of seeds. A fair second crop of flowers may be had by cutting the stems to within 6 inches or so of the ground



A BORDER OF HARDY FLOWERS.

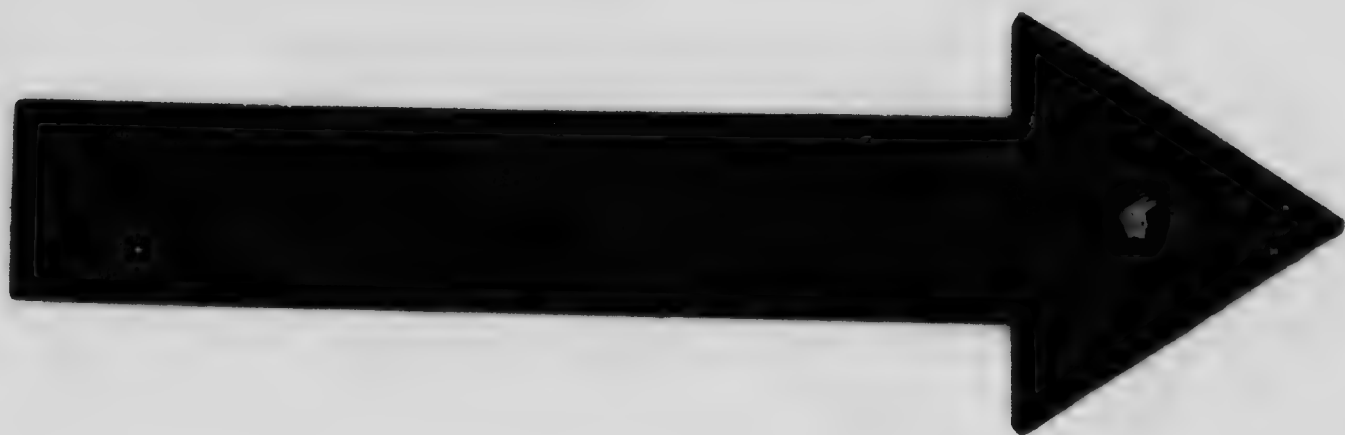
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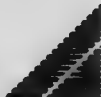
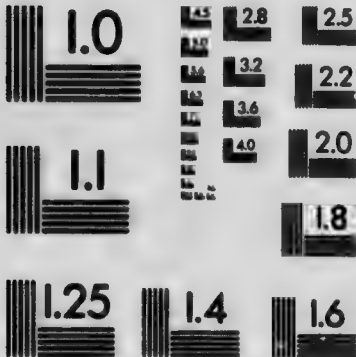
level after the first blooms are over, but this can be done with success only when the plants are vigorous and growing in rich ground. After four or five years Delphinium clumps usually become somewhat worn out. This is remedied by digging them up in October, throwing away the central, and replanting the outer portion. An opportunity then arises of dividing the young outer growths to increase the stock of any favourite variety. Propagation may be also effected by cuttings taken in spring as the plants start into growth, or preferably in summer when the blooms are past. In the latter case the old stems are cut down and the plants well watered. As young shoots make their appearance, they are taken off as cuttings. These form roots readily in sandy soil in a closed and shady frame, but the most fascinating method of raising a collection of Delphiniums and quite a simple method is from seed. I have raised dozens of plants in this way, and it is worth while if only for the sake of the keen interest aroused as each seedling first comes into bloom. One gets a variety of colour tints, although usually the flowers are shades of blue. Seed may be sown at any time during spring and summer. I sow in March in pots or boxes, keeping these in an unheated greenhouse; the pots or boxes are covered with glass and shaded until germination takes place. Then a position near the glass is essential for a time with shade from sunshine. As the plants progress, they are gradually hardened off, and in May are put out in a border. Most of them bear little bloom spikes in September, and in a year or two they make good plants.

The question of varieties becomes increasingly difficult year by year, since each season witnesses the advent of new and usually improved sorts, raised not only by nurserymen, but by private growers also. The best plan is to consult the catalogues of those nurserymen who make a speciality of Delphiniums, and to visit flower shows where, in season, the best of new and standard varieties are to be seen. Some of the best of the newer sorts are Black and White, white with black blotch; Royal Blue, deep blue; Amos Perry, rosy mauve and blue; Devonshire Cream, creamy white; La France, rosy lavender and blue; Queen Wilhelmina, sky blue flushed with rose; Star of Langport, pale sky blue with white centre; Glow, reddish purple shades; Prince Charming, lilac pink, black centre; Masterpiece, blue and rose shades. Sir Wroth Lethbridge, blue purple; Monarch of All, violet and purple. A collection of up-to-date varieties, excluding the newest and most expensive should comprise the following: King of Delphiniums, rich blue, white centre; Mrs. Creighton, deep blue, darker centre; Dorothy Kelway, sky blue and lavender; Sir George Newnes, sky blue and plum colour, white centre; Persimmon, sky blue; Sir John Forrest, violet and purple, white centre; Captain Holford, bright blue marked with rose and lavender; General Baden-Powell, rich blue and rose mauve; Beatrice Kelway, rich blue and rose; Beauty of Langport, sulphur white; Belladonna, sky blue; Lord Kitchener, rich blue, white centre. In addition to the innumerable named garden varieties,



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of which selections are given above, several species or wild types of perennial Delphinium are beautiful and uncommon plants. They are easily raised from seed, which may be sown from spring to autumn in the manner already detailed. *Cardinale* and *nudicaule* have scarlet flowers, the former grows 4 feet, the latter only about 2 feet high; *nudicaule* blooms in May, *cardinale* in July; *grandiflorum* or *chinense* (the Siberian Larkspur), with blue purple flowers, 2 to 3 feet high; *cashmerianum*, blue purple, 18 inches high. The double Siberian Larkspur (*grandiflorum flore pleno*) is a fine plant.

GAILLARDIA.—Many amateurs fail with this showy and indispensable border plant, through planting in heavy, ill-dug land. It needs well drained, warm, and rather light soil. As many growers find, it is an excellent plan to treat the *Gaillardia* as a half hardy annual, sowing seed in early spring. Another method that proves most successful is thus described by a correspondent:—"The *Gaillardia* should really be treated as a biennial and only expected to bloom once. After the period of blossom is over the flower stems die down, and often in winter all sign of growth disappears, but there is plenty of life down below. Every bit of root is somewhat similar in its functions to the rhizome of an *Iris*, and will send up a bud and produce a new plant. Let the rootstock remain in its old position until the new shoots show. In a few weeks a perfect rosette of new growth will appear. Each rosette will contain a great number of little plants. Left in a mass these will probably remain 'blind.' As soon as the rosette is large enough to handle easily take it up with a border fork, carefully shake out the mould and separate into single crowns. Each of these dibbled out in a piece of spare ground will root and develop into a sturdy plant by the end of September, when it may be transplanted to the position in which it should flower abundantly next year."

GYPSOPHILA (*Chalk Plant, or Gause Flower*).—The *Gypsophila* has become familiar chiefly, I believe, owing to the peculiar value of its blooms for decorative purposes, and more particularly for arranging with other flowers, as, for instance, Sweet Peas. The *Gypsophila* blooms are small and white, and are produced in great profusion on branching stems. They are extremely light and graceful in appearance, and are ideal for home decoration. I cannot help thinking that popular as it is in the home, the *Gypsophila* is really not very largely grown in amateurs' gardens, for I rarely come across it. It may not be very generally known what an especially fine border plant it is, not, of course, showy, but the profusion of graceful white blossoms that crown a well grown plant are very bewitching. A few clumps here and there in the border, especially among the rose-coloured flowers, have a very charming effect. Although the flowers are white the effect of a plant in bloom is grey. The *Gypsophila* improves the appearance of a gay border very considerably. It dislikes a heavy, clayey soil, and prefers well drained, loamy ground. But really any

soil can be made suitable for it—heavy land by being well dug and drained and by the addition of road scrapings; light soil by the addition of leaf mould and turfy soil. I do not wish to infer that the *Gypsophila* is what the gardener so delightfully calls a "a miffy doer"; it is by no means that. It does, however, appreciate good soil, and to provide this is the only way to induce it to form a really fine clump. Its usual height is about 3 feet. There is a fine double *Gypsophila* (*paniculata flore pleno*); the flowers are larger than the single-blossomed sort, and they are whiter; at any rate, they appear much whiter in the mass, and a plant in good bloom is very striking. I first saw the plant at Messrs. Thompson's nursery, at Wimbledon, and its white effect, as distinct from the grey effect of the ordinary kind, struck me as being very pronounced. *Gypsophila* is most quickly increased by dividing the roots in early autumn, but it prefers to be undisturbed. Then and then only will it develop into a really fine clump.

HELIANTHUS (*Sunflower*).—The first thing of importance about Sunflowers that the amateur should know is that they will, on the slightest latitude being given, develop into weeds. Perhaps it is scarcely fair to refer to all Sunflowers in this way, for some are much worse than others. But I am afraid they are all tarred with the same brush! The mention of Sunflower commonly conjures up visions of tall stems clothed with large leaves, crowned by giant yellow flowers, that have nothing of grace or charm about them, although they have the redeeming merit of rich yellow colouring. But these are the annual sorts, and for the moment we have to consider the perennials—altogether a more attractive class of plants. They grow from 3 to 5 feet high, bloom in late summer and early autumn, and are really valuable garden flowers. Their cultivation is scarcely to be thought of; they are, perhaps, the easiest of all plants to please in the matter of soil and situation, but like every other flower, the better treatment they get the more handsome will be the grower's reward. They are well suited to planting in shrubberies, in the wild garden, and in waste places, but are scarcely so fine there as in the prepared soil of the garden border. They are best planted in October or November, but may be put in during the winter and early spring in favourable weather. They spread very rapidly, and some of them soon become a nuisance if not kept in check. The grower's difficulty with this plant is not how to work up a stock, but how to prevent the Sunflower from taking possession of the garden. Some of the choicest, and only these should find a place in the flower border, are the following:—*decapetalus*, light yellow, flowers in August and September, 4 to 6 feet high; *Miss Mellish*, one of the best of all, growing about 6 feet high and producing in late August and September, large semi-double bright yellow flowers; *H. G. Moon*, 3 to 4 feet high, with single, bright yellow blooms; *mollis*, with handsome, greyish leaves and rich yellow, black-centred blooms, in September, 3 feet high; *multiflorus Bouquet d'Or*, double, rich

yellow flowers in September; *rigidus semi-plenus*, rich semi-double, blooms in September and October, 3 to 4 feet high. Others that are rampant growing plants and suitable for less choice positions are:—*orgyalis*, 6 to 10 feet high; *giganteus*, 8 to 10 feet high; and *lactiflorus*, 6 to 8 feet high. All have yellow blooms, and flower in early autumn. Not the least merit of the perennial Sunflowers, which have comparatively small blooms, say 3 to 4 inches across, is that they flower very freely, and are valuable for cutting for home decoration.

HELLEBORUS (*Christmas and Lenten Roses*).—The Christmas Rose (*Helleborus niger*) begins to bloom in November, and continues to flower during the dullest days of the year until, in fact, the Lenten Rose (*Helleborus orientalis*) takes up the running in March. Some of the sorts are worthless or, at least, have little garden value; those, for instance, that have green and dull red flowers. The white varieties are the most beautiful; there are some fine crimson-flowered sorts also, although the crimson colouring is dull. Usually the first to open is the large white-flowered variety called *maximus*, or *grandiflorus*. The blooms open in November just when the garden is assuming its most doleful air, and one is ready to hail with delight the opening of any new flower, especially when of such fresh beauty as this. The true Christmas Rose has smaller blooms than the variety just mentioned, but it comes later, about Christmas time. Another sort to be recommended is called *St. Brigid*, but this does not flower until well on in January. It is, however, one of the finest of all. With these three sorts the amateur will, I think, have the best of the Christmas Roses. The Lenten Roses, which may be expected to begin blooming in February, or earlier, according to the state of the weather, are stronger growing and more hardy plants than the Christmas Roses. Of those with white flowers, *olympicus* and its variety *W. Schmidt*; *guttatus*, and one called Professor Dr. Schleicher, are well worth growing; *albus roseus* has lovely blush-coloured flowers; *orientalis* is purplish crimson; *Apotheker Bogren*, purplish; *Frau Irene Heine-mann*, purple rose; and *colchicus*, red crimson. These are all good Lenten Roses. There is thus little difficulty in making a choice of sorts to grow, but the actual growing presents greater difficulty to many amateurs. Some of the finest Christmas and Lenten Roses I have seen are grown among ferns at the edge of a woodland or forest trees. The plants are beneath the overhanging branches of the outer belt of trees, not right in the woodland depths. Thus they are doubly protected by the tree branches and by the ferns, for the dead fronds of the latter are not cut off as they fade. In such a position, too, the white flowers that are so easily disfigured by rain and wind, preserve more of their purity and freshness than when in an exposed place. It is an excellent plan to put a handlight over some of the white-flowered plants, as they come into bloom, for then the blossoms may be gathered pure and unspotted. For the cold greenhouse the Christmas Roses are invaluable; a clump may be lifted in November when the

buds show, and if carefully potted in a large flower pot the beautiful flowers may be enjoyed to the full. They will open perfectly under the shelter that such a greenhouse affords. After flowering, say in March, the roots may be planted out of doors. One is often asked which is the best time to transplant Christmas and Lenten Roses. Although there is much divergence of opinion among experts, I shall recommend that July is the best time for the work, for by then the plant's growth for the season is developed. But the Christmas and Lenten Roses are not plants to be disturbed frequently. If planted in well dug and turfy soil in the first place, and given an annual dressing of manure in April, they may be left undisturbed for several years. One may add to the number of plants by dividing the roots in July, or fresh plants may be raised from seed, but the amateur will find the former method the most satisfactory.

HEMEROCALLIS (*Day Lily*).—Those who may have the misfortune, or the good fortune, as they may choose to regard it, of living in the suburbs are lucky in being able to grow such a charming plant as the Day Lily, for it is one of the best of all for the town and suburban garden. The shady border, that *bête noire* of the amateur gardener, has no terrors for it. Those possessing a country garden which contains a stream or pond should plant the Day Lily on the margins, for there, with its roots in moist soil, the leaves and flowers are happy in the sunshine. *Hemerocallis*, despite its formidable name, needs no elaborate cultivation; ordinary garden soil suits it well, although the more deeply it is dug the better will the plants thrive. You may plant them in the autumn or in the spring, although it can readily be imagined that as the plants blossom in July, if not planted until March their chance of flowering well the first year is extremely remote. *Verbum sapienti*. As to the selection of varieties, well there is plenty of choice in names but unfortunately not much choice so far as variety of colouring goes. Some of the best are: *aurantiaca*, orange yellow; *aurantiaca major*, still richer orange yellow, a striking colour and quite one of the best; *Dumortieri*, yellow inside, brownish outside; *flava major*, rich yellow; and *Thunbergii*, a strong growing sort, 3 feet high, with fine yellow blooms. There are now many named varieties that have been raised by the florist, and some of these are distinct and good. The latest comer is *Dr. Regel*, with light yellow blooms that are freely produced. Sir Michael Foster, apricot yellow, flowering in July and August; and *Sovereign*, orange yellow and brown, are two others that have been well shown and are recognised as two varieties of merit.

IRISES.—Irises are represented in gardens by a large and varied number of sorts, most of which are of great decorative value. Some may be depended on to blossom freely year after year with the minimum amount of attention; others, of delicate constitution, test the ability of the cultivator to the uttermost, yet so beautiful are the flowers that, though repeated failures may be encountered, the

enthusiastic gardener goes on trying, until he eventually finds out the conditions which insure success. Some resemble the common Yellow Flag of our watercourses; others have similar shaped leaves and the same rhizomatous stems, but are of quite dwarf habit; some have bulbs instead of rhizomes; and whilst some kinds live on ordinary land, others find the most satisfactory conditions when partly immersed in water. The natural homes of the various kinds are very wide apart. Irises are widely distributed through Europe, Asia and North America; a few are found in Africa. Fortunately they are chiefly from the temperate regions of those countries, therefore the greater number are hardy in the British Isles. It is not, however, to species or wild types alone that we have to look for garden Irises, for in the hands of the hybridist an extensive range of varieties has appeared, and they are far more commonly grown than their parents.

Irises may be conveniently divided into two large groups: Bulbous and Rhizomatous. The latter is the more extensive and the better known, though two belonging to the former class, which are known respectively as English and Spanish Irises, are great favourites. The rhizomatous group includes all the well known garden Irises such as the *germanica*, *aphylla*, *pallida*, *neglecta* and *squalens* forms, also the water-loving *sibirica* and *lævigata*. The bulbous group, on the other hand, contains many of the choice early-flowering kinds, such as *alata*, *Histrio*, *orchioides*, *Danfordiæ*, *persica*, *reticulata*, and the Spanish and English varieties already alluded to. A group to which some attention has been directed of late forms a section of the rhizomatous group. The various kinds are known as *Oncocyclus* Irises, and they are remarkable for their exquisite colouring. Unfortunately they are difficult to grow, and are rarely met with in first-rate condition for a lengthy period.

Irises generally rejoice in a well drained, rich, loamy soil, though the garden varieties may be expected to thrive in any ordinary soil of good quality, and a few of the commoner varieties thrive in sandy soil. When ground is manured for them, some strong-growing plant should be planted first, so that the Irises will not come in contact with fresh dung, for though good-tempered plants on the whole gross feeding may lead to their downfall. Some Irises are susceptible to fungoid attacks, and highly fed plants are likely to fall early victims should the disease appear. It is first noticeable by the leaves wilting and turning yellow. An examination of the base of the stem will reveal a decayed condition which has probably spread to the rhizome. A bad attack is difficult to combat: the best means is to take up all the plants, cut away and burn affected parts, remove the soil to a depth of 12 inches, and replace with good soil. Otherwise grow the plants in an entirely fresh position. The rhizomatous Irises (those possessing a thick, fleshy rootstock) are readily increased by division, which may be done as soon as the flowers are over, in May or June as the case may be. Old clumps sometimes become bare of growths



THE FLORENTINE IRIS

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in the centre by the constant outward tendency of the growing points. To remedy this the plants should be taken up in autumn and the inner part removed, placing several of the outer pieces together to form a large clump. For growing in the greenhouse, strong plants may be lifted in autumn and placed in pots. They are kept in a cold frame, or plunged out of doors until required for the greenhouse.

The bulbous Irises may be grown either in pots or in a border. Many of them are rare and rather expensive. The best outdoor position is found in a well drained border of sandy loam at the foot of a wall with a south or west exposure, that is for the rarer kinds. The Spanish and English varieties may, however, be grown in beds in the open. The Spanish Iris is known botanically as *I. xiphium*, and the English Iris as *I. xiphioides*. The former has chiefly yellow and white flowers, and the latter blue and white. Both kinds may be obtained at a reasonable price, and both are very popular for cutting for house decoration; in fact, they form important flowers for marketing. The majority of the other kinds are less robust. A well known sort is *reticulata*, which is conspicuous in early spring by reason of its elegant purple and gold blossoms. Other useful kinds are *persica*, *Histrio*, *orchioides* and *Danfordiae*. For growing in pots, they may be potted as other bulbs, and treated in a similar manner to *Narcissi*. Those who wish to grow Irises simply for their decorative value cannot do better than obtain a selection of varieties of *germanica*, the German or Flag Iris of gardens. They are vigorous and rarely fail to blossom well: *albicans*, *Darius*, *delicatissima*, *flavescens*, *florentina*, *L'Innocence*, *macrantha*, *Maori King*, *pallida dalmatica*, *Plutarch*, *Ruby* and *Victorine* are some of many good varieties. The following half dozen, too, will be found useful: *biflora*, *flavescens*, *hybrida*, *pumila*, *squalens*, *variegata*. A plant suitable for a warm position at the foot of a wall is found in *I. unguicularis*. It blossoms during winter, the flowers being purple in colour. A white variety also is known. For water-planting, in addition to the common *Pseudacorus*, there are the purple flowered *sibirica*, which is of peculiarly graceful habit, and grows 2½ to 3 feet high, and the many beautiful varieties of various colours, which are included under the Japanese Flag, *I. lœvigata*. The varieties are raised in Japan, and imported into European gardens. They like rich mud and shallow water.

KNIPHOFIA (*Flame Flower*).—Who that does not know, would recognise the old Red Hot Poker of childhood's days under the high sounding title of *Kniphofia*? It is as though we should lose sight of some old schoolfellow whom we knew under a very familiar nickname, and in later years meet him with titles to his name, for the old Red Hot Poker is variously known as Torch Lily and Flame Flower, as well as possessing two botanical names (as is not very uncommon with flowers in these days), namely, *Tritoma* and *Kniphofia*. But whatever name we decide to give it, and surely there are plenty to choose from,

this is one of the finest ornaments of the garden from August, throughout September, and into October. It has a dignity and stateliness all its own, and is not easily surpassed for rich effect in the garden in late summer and autumn. It is not quite a suitable plant for the hardy flower border, but should be grouped at the lawn edge, by the water side, or in those places where the lawn runs back in the shrubbery. Everyone must know the large tufts of generally thin, long, leafage that are surmounted late in summer by the erect, strong, flower spikes or "torches" or "pokers" in various shades of orange and yellow. It will probably come as a surprise to many readers to learn that these plants, familiar as long as memory serves, are not very hardy; that is to say, they may live through a series of mild winters, but a spell of severe weather will probably kill them. Or is it that a general knowledge of this failing prevents their not being so commonly grown as their striking merits would seem to warrant? Who can explain the vagaries of popular favour as meted out to various flowers? Much may be done to ensure their passing safely through the cold weather if a sheltered spot is chosen, as, for instance, where a substantial shrubbery protects them from north and east; or if, when winter approaches, the leaves are carefully tied up to a strong, 'ick stake, and spruce branches and leaves are made fast, chiefly about the centre of the plants. Or a few sacks may be used to protect them, but they are unsightly. If grown in heavy, clayey soil they are more likely to perish in the winter than on lighter land that is, of course, warmer. *Kniphofia aloides* is the original Red Hot Poker, and improved varieties of this are still the most generally satisfactory and among the most handsome of the many Torch Lilies now at the disposal of the would-be purchaser. *Saundersi*, which sends its giant flower stems of orange red bloom 6 or 7 feet high, is perhaps the finest of all; *aloides grandiflora*, orange yellow, and *grandis*, crimson and yellow, are beautiful sorts. *Obelisque*, rich yellow, and *Meteor*, yellow, are other showy cross-bred sorts among the vigorous growing *Kniphofias*. *Nelsoni* and *Cowani* are particularly elegant plants, only 18 inches or so high, with slender spikes of coral red blooms. *Longicollis* is a fine late-flowering orange yellow sort. *Tucki* is one of the most distinct, with handsome, broad leaves, bearing reddish yellow flowers, but as these open in the height of summer, it has not the same peculiar value as the other *Kniphofias*. *Lemon Queen* is well worth growing on account of its distinct and unusual colouring, which is well indicated by the name: its height is about 2½ feet. I am afraid I am in danger of wearying the reader with a string of names, so will conclude with a mention of *Pfitzeri*, which is strongly to be recommended; it is a sturdy plant, some 2 feet high, and bears rich coral red blooms on strong stems. It is an easy matter to increase all those I have mentioned by dividing the clumps in autumn, since all are stemless kinds. There are, however, several *Kniphofias* with a distinct stem, and the only way of raising a stock of these is by the ruthless method of cutting down

the plant to within a few inches of the ground in spring. Numerous fresh growths will appear, and as soon as they are nicely rooted they are taken off, potted, and kept in a frame until the following spring, when they ought to be strong enough to plant outside.

LATHYRUS (*Perennial Pea*).—The mention of *Lathyrus* must surely conjure up visions in the reader's mind of the ubiquitous Sweet Pea, which has made much progress in the flower world during the past ten years; so much, indeed, that it has a society devoted to its welfare, a literature of its own. In the estimation of some folk it has attracted altogether more attention than it deserves; in the opinion of others it is a flower that cannot be made too much of. However that may be, we are not for the moment concerned with either its merits or its defects. Our attention is claimed by the Perennial Pea, and we shall find there is much to be urged in favour of its inclusion in the flower border. It is a rampant plant of sturdier growth than the Sweet Pea, and I need scarcely say it has the merit of coming up year after year with little or no attention on the grower's part. It is an easy plant to grow; in fact, all the gardener has to do is to plant it in well dug soil in October or November or, if preferred, in spring, allow it plenty of space for development, and leave it alone for several years. It will then develop each summer into a bush some 6 feet high, and the great, lissom growths will clothe themselves in blossom throughout July and August. One thing the grower must not forget, namely, to provide some stout, tall sticks over which the shoots may twine and intertwine to their hearts' content. It may perhaps be urged against the Perennial Pea that its purplish blooms are of unattractive colouring, and if I cannot altogether deny this thrust against a plant that has many good points, I can at least advise the reader to grow the White Pearl, a variety with fine, large bunches of pure white blossoms. He must be a most discontented gardener who can find fault with so lovely a plant as this. It is altogether ^{more} than any other Perennial Pea, and is the one I recommend ^{to} grow. But lest it be said that it is my duty in *THE COMPLETE GARDENER* not to acclaim my preferences, but to give a description of several and leave the reader to make his own choice, let me take this self-counselling to heart, and mention also as worthy of notice the following. The common purple red Perennial Pea is called *latifolius*, and there are varieties of it, other than White Pearl, namely, *albus*, white, and *delicatus*, rose. Then there is *rotundifolius*, that grows about 4 feet high, and has the merit, if merit it be, of producing blossoms that show several shades of colour, salmon and rose predominating; *grandiflorus*, rose crimson, which is of less vigorous growth, although this is not to say that it is a delicate plant. Finally, I must mention Anson's blue-flowered Perennial Pea (*Lathyrus magellanicus*), not, alas! because it is a good border plant (would that it were!), but because it is an exquisite flower. Its chief fault is that it is not hardy, and that is a drawback that at once lessens its usefulness. Still, I am sure many

will be glad to know that against a warm south wall, or in a greenhouse, it may be induced to thrive. The Perennial Peas may be taken up in October, divided, and replanted if one wishes to have a large number of plants, or they may be readily raised from seed." By the latter method, however, some two or three years elapse before they make vigorous plants. They are very handsome in the flower border when allowed to ramble freely over a few poles, and this, I think, is the best way to grow them. I have at present a few plants that I raised from seed, but two years have passed since I sowed them, and they have still a long way to go before they will be 6 feet high.

LUPINUS POLYPHYLLUS (*Lupin*).—The Lupin has long been a favourite flower with all who have a garden, and for ease of cultivation and general attractiveness in May and June it is scarcely to be surpassed. It is only seen at its best when it has formed a large clump and this result is only achieved by leaving the plants undisturbed for several years; the average height is 2 to 3 feet. The best time to plant is in October, although, as with most common, hardy flowers, they may be put in any time in the winter except in very cold, wet weather. Lupins may be had in a variety of colours; *Lupinus polyphyllus* and its white variety, *albus*, are the commonest. Other named varieties are: *roseus*, which has charming rose pink flowers, although as they fade they unfortunately have an unpleasant magenta tinge; *Purple King*; a beautiful blue and white sort called *Foxi*; *Somerset*, pale yellow; and *Moerheimii*, a beautiful sort with pale rose-coloured flowers. The Lupin thrives admirably in any ordinary garden soil; this should, however, be deeply dug since the Lupin makes long, thick, fleshy roots which go deeply into the ground. The best way of increasing Lupins is by seeds, for the seedlings grow literally like weeds. I have sown seeds out of doors in May and had the plants in bloom by August of the same year, and by the following summer they made quite excellent plants. If there is one fault to be urged against the Lupin, it is that it becomes rather untidy when the flowers are over, but as a few blossoms are produced throughout the summer this untidy appearance is somewhat compensated for, and it may be largely discounted by cutting off the worn-out leaves. The Tree Lupin (*arboreus*), with yellow flowers, and its white variety are, when well developed, extremely handsome. Growing some 4 to 6 feet high, they soon form big bushes, and all that can be urged against them is that they die down every autumn, although, of course, they come up again in spring. The white variety of Tree Lupin, called *Snow Queen*, is particularly beautiful, and in common with all Tree Lupins, has fragrant flowers. All the Lupins are easily raised from seed, and while the herbaceous sorts will flower well the year after seed is sown, the Tree Lupin will take two years to make a good show.

PÆONIES.—These comprise many plants of an extremely showy character: although the number of species or wild types in general cultivation is not large, the deficiency is qualified by the fact



AN EXQUISITE GARDEN SCENE. BLUEBELLS AMONG BUDDING FERNS.

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that several kinds have proved to be amenable to improvement in the hands of the horticulturist, with the result that by careful hybridising and selection a large number of garden forms have been obtained which excel the parents in variation of colour, size of flowers and free-flowering qualities. Garden Pæonies may be divided into two distinct groups, one of which is made up of kinds of herbaceous growth and the other of shrubby sorts. The herbaceous kinds are the most widely cultivated, for they are hardier than the others, and thrive in places where the shrubby section would be a complete failure.

Herbaceous Pæonies.—*Pæonia albiflora*, a native of Siberia and other parts of Northern Asia, has been the chief parent used in the production of this race of Pæonies, whilst the Common Garden Pæony, *P. officinalis*, which is found wild in Europe, has exerted some influence. Both plants are showy, the former being characterised by its large white or pinkish flowers, and the latter by its well-known dark red, single or double blossoms. The many varieties owe their origin to different sources, for the Japanese and Chinese have worked at the species *albiflora* for many generations, whilst from the time of its introduction into Western gardens European horticulturists have pressed forward the work. It would be almost impossible to give even an approximate number of the known varieties, for they are almost as numerous as varieties of *Chrysanthemum*; neither would any good purpose be served by endeavouring to do so, consequently a select list of a few varieties only is appended later. The herbaceous Pæony resembles the *Dahlia* inasmuch that it forms numerous thick, fleshy tubers, each of which has a number of buds near the apex, from which the shoots are formed. When working about the plants it is important that these buds should be preserved from injury, for if a bud becomes injured during winter its prospective flowers are lost. The young shoots are very conspicuous when they first appear, for they are of a beautiful red or bronze colour, the colouring being retained until the leaves expand. As the flower buds appear very early, long before the leaves are fully expanded, it occasionally happens in cold districts that they are injured by late spring frosts, but such injury is not of frequent occurrence. A rich, loamy soil is very suitable for Pæony culture, but it is not advisable to place green manure about the roots; rather manure the ground well, and take a crop from it before planting the Pæonies. Well decayed manure may be used as a top dressing, though it is not a good plan to place fresh manure about the crowns. Propagation may be effected by division of the clumps, or the young shoots may be severed in spring and be grafted upon tubers of commoner kinds, the work being done in a warm greenhouse. If grafting is practised, care must be taken to remove all the buds from the stock, or there will be a danger of suckers growing and smothering the scion. On the scion, however, the lower buds must be retained, and it is advisable to select pieces which do not show flower buds. Grafting, however, is less satisfactory than division,

and is rarely practised. The health of the plants and the size of the flowers may be materially improved by thinning out the weak shoots from each clump. Growths that do not show flowers, and those on which the buds appear undersized or deformed, may be pulled out early in May. When flowers of special size are required, the central bud only on each stem may be left to develop, the remainder being removed as soon as they can be handled safely. Should signs of deterioration be apparent, then, in autumn, the plants must be lifted, divided, and planted in fresh ground. Pæonies, in addition to being of imposing presence when planted in groups in the herbaceous border, are excellent for group beds or for masses in a thin shrubbery. There is just one point about them which is rather unsatisfactory—namely, that after the flowers are over there is a period of several months during which they have nothing to show but foliage, and this being dense, there is little opportunity of interplanting with any late-flowering plant.

Selection of varieties.—Double-flowered: Agnes Mary Kelway, rose and yellow; Alba plenissima, white; Alexandre Dumas, rose and cream; Dawn, pink; Delicata, pink and white; Dorothy, deep rose and yellow; Festiva maxima, white and red; Imperial Queen, crimson and yellow; La Tulipe, white and crimson; Masterpiece, pink; The Mikado, red; Pink Globe, pink; Prince George, purple; Princess May, cream; Sir Henry Irving, rose pink.

Single varieties: Albiflora striata, white, striped red; Aimable, bright rose; Bridesmaid, white; Dog Rose, rose pink; Kathleen, white; Lady Helen Vincent, white and flesh; Rosy Dawn, blush.

Tree Pæonies.—This group has originated by the cultivation, improvement and selection of the Chinese Pæonia Moutan. Early collectors in China found it one of the most popular garden flowers, whilst the Japanese appear to have given it quite as prominent a place amongst their garden plants. It figures largely in both Chinese and Japanese paintings, and there can be no doubt that the many fine varieties now in cultivation are due almost entirely to the skill of Eastern gardeners. Though some varieties are of European origin, a great many which bear European names were originally introduced from either China or Japan. The flowers of the Tree Pæonies are gorgeous in the extreme, some varieties producing blooms from 9 to 12 inches across, the colour of which may be from white to pink, red or purple. A few years ago another Tree Pæony appeared under the name of Pæonia lutea. This has golden blossoms. It is, however, very rare, and not easily obtained. P. Moutan forms a bush 4 to 6 feet high, with large, often glaucous leaves, and the flowers may be either single or double. So far as winter weather is concerned, it is perfectly hardy, but it has the failing of commencing to grow early, therefore the young shoots are frequently injured by frost in many gardens. In English gardens it is, however, widely used as a pot plant in districts where it may not be grown with success out of doors.



A BEAUTIFUL SPRING GARDEN OF WALLFLOWERS, FORGET-ME-NOTS, ETC.

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Of late years, varieties have been introduced in large numbers from Japan. For outdoor cultivation similar soil to that required by the herbaceous kinds is quite suitable. Those grown in pots may have the base of the compost made up of turfy soil with a little mortar rubble, leaf mould and sand added. Propagation may be effected by grafting the soft young shoots upon tubers of strong-growing herbaceous kinds in spring. The work must be done under glass. Subjected to a little forcing, plants may be got into flower for conservatory decoration in March. After danger of frost is over, all the plants may be plunged out of doors in full sun. Throughout the growing period, a fair amount of water will be necessary with a little liquid manure after the plants are well established. Good varieties are: Captain Lambton, rose; General Baden-Powell, red; Grand Duke, flesh; Henry Irving, maroon crimson; James Kelway, rich rose; Lady Sarah Wilson, blush rose; Lord Roberts, white, rose tinted; Snowflake, white.

PHLOX.—There are four chief types of Phlox—Alpine, early summer blooming, later summer blooming, and annual. We are now concerned with the summer flowering Phloxes only. Those varieties that bloom in August and September are most valuable to the gardener. They thrive best in a rich soil and a cool position; a border facing north-west suits them admirably. There the colours remain bright and the blooms fresh. The plants should be undisturbed for several years; then they form splendid clumps that give a fine flower display when many summer blooms are past. In poor, light soil and a hot position Phloxes are not seen at their best. A covering of rotted manure, or a mixture of two parts turfy soil and one part manure is of great advantage if applied in April or May. Careful staking is necessary if the plants are to be kept neat. The usual way is to place three or four stakes around the clump and to connect them with string. If the staking is done early, neither sticks nor string is visible when the plants come into bloom. Propagation is easily effected by dividing the clumps either in October or March. If the clump is a large one, select the outer pieces, and reject those from the centre. Each portion of the clump should possess four or five shoots, then a display of blossom is assured the following summer. It is necessary to plant firmly and not to bury the roots deeply. Phlox is largely surface rooting, and a covering of, say, 3 inches of soil above the uppermost roots is sufficient. Water very freely in hot weather. Cut off the flowers as they fade, the display is thereby prolonged well into autumn. Cuttings may be taken, but fine clumps are not formed so quickly by this means as by division. The best way of obtaining cuttings is, in autumn, to pot up those varieties it is decided to increase. Keep them in a frame or cold greenhouse throughout the winter and in February place them in a warm greenhouse with a temperature of about 60°. There fresh growths will soon be produced; when 2 to 3 inches long they are taken off and inserted as cuttings (cutting

below a joint and removing two or three of the lowest leaves) in a propagating frame in the warm greenhouse. The cuttings are placed in pots filled with sandy soil and quickly form roots. They are subsequently re-potted and gradually hardened off for planting out in May. Phloxes are readily raised from seed sown in a greenhouse in March or in early autumn. If seed is sown in autumn the seedlings may be kept in a cold frame throughout the winter. If from spring-sown seed plant the seedlings outdoors in May; most of them will produce sufficient flowers in late summer or autumn to enable one to judge if they are of any value. Those that are worthless should be thrown away. When one grows hardy plants from seed, a nursery bed or reserve border is a necessity; some of the seedlings are certain to be valueless, and only those that commend themselves to the gardener should be "grown on" for planting in the flower border.

A collection of up-to-date varieties should comprise the following—they are all showy, handsome sorts:—Flambeau, orange red; Le Mahdi, violet blue; Freifraulein G. von Lassburg, white; Sylphide, white; Rheingau, white; Parthenon, rose, white centre; Queen of the Flower Beds, rose, carmine centre; Eugène Danzanvilliers, lilac blue, white centre; George A. Strohlein, orange red; Mrs. Oliver, salmon rose; Elizabeth Campbell, light salmon; Burgomaster Ritter, carmine purple, shading to salmon at edge; Wolfgang von Goethe, rose red, white centre; Sinbad, lilac mauve; Gruppenkönigin, flesh rose; Coquelicot, vermilion; William Robinson, rose pink, crimson centre; Walter Wright, crimson purple, crimson centre; Paul Bert, violet blue; Lady Grisell, lilac grey; Iris, violet blue; Lord Kelvin, crimson; Fernand Cortez, cerise rose.

The early summer blooming Phloxes are not very commonly grown. They cannot be considered such valuable flowers as the late summer Phloxes, although very attractive. They grow about 2 feet high only, and bloom very freely in June and July. They like a rich, well drained soil, and in common with the later varieties, appreciate a covering of manure about the roots in spring. Mrs. Cobham, white; Miss Miller, rose; Lady Musgrave, lilac and white; Rev. Dr. Hornby, white, purple centre; Fantasy, pink and crimson; and Charles Downie, rose crimson, are good varieties.

PYRETHRUM (*Showy Feverfew*).—The Pyrethrum, or Showy Feverfew, is, or should be, everybody's flower. It is an excellent border plant and ideal for cutting. June sees Pyrethrums at their best, but if the old flower stems are cut down and the plants given liquid manure, say, once a week, quite a good harvest of blossom results in late summer. No town garden should be without Pyrethrum, for the unfavourable conditions that obtain there do not adversely affect it. It thrives best in a well drained soil; in heavy, clayey stuff the roots are apt to perish during winter. As with almost every other border flower, soil well dug and enriched with rotted manure is essential



WATER LILY POOL AND FLOWER BORDERS.

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to success. Propagation is effected either by division or by seed sowing. The clumps may be divided in March. When as many pieces as are needed have been chosen, each is potted singly in a 3-inch wide flower pot. They are kept in a cold frame until late May, and then are put out in a reserve border to be "grown on." Another way is to divide the clumps in September, potting up the pieces, keeping them in a cold frame throughout the winter, and planting out in April. I have found it best to plant *Pyrethrum* in spring rather than in autumn. Unless they are well established before winter sets in losses will occur. *Pyrethrums* come readily from seed, which is preferably sown as soon as ripe in boxes in a shady place outdoors, or in spring in the greenhouse or frame. In either case it is best to keep the plants in frames during the first winter, planting them out in the following spring.

Good varieties are:—*Single*: Agnes Mary Kelway, bright rose; Alice, light rose; Beatrice Kelway, cherry rose; Dagon, crimson; Elsie Gertrude, flesh; Hamlet, rose; Heroine, pink; James Kelway, rich crimson; Jubilee, bright crimson; Mrs. Bateman Brown, crimson; Princess Marie, white. *Double*: Aphrodite, white; Captain Nares, crimson; Cleopatra, pale yellow and white; Empress Queen, blush; Gloire de Stella, carmine; J. N. Twerdy, crimson; Madame Meunier, pink; Melton, crimson; Pericles, yellow and peach; Sambanburgh, white; Virgo, white with primrose centre; Wilhelm Krumper, rose, tipped with white.

PYRETHRUM ULIGINOSUM (*Moon Daisy*).—This is a plant of quite distinct appearance. It is a fine autumn flower, white, with yellowish centre—a giant Ox-eye Daisy. The blooms are freely produced on stems, 4 to 5 feet or more high. It grows freely in any ordinary border soil, soon forming a handsome clump. Increase is effected by dividing the clumps, replanting the outer and throwing away the inner pieces. This is a good plant for the town garden, and for a north or shady border.

RUDBECKIA (*Coneflower*).—The best of the Rudbeckias, or Coneflowers, are handsome garden plants, the worst are not much better than weeds. All have yellow flowers except *Rudbeckia* (*Echinacea*) *purpurea*, and bloom in late summer and early autumn, from August to October. Any ordinary soil suits them; in fact, they are good wild garden plants and flourish, with little attention, if given a start in well prepared soil. The finest of all Coneflowers is a variety called Golden Glow, with double flowers of rich yellow colouring, freely produced on 5 to 6 feet high stems. A good new variety of similar height and with large golden yellow blossoms in August and September is *Herbstsonne*. A group of Golden Glow is very beautiful in September, and scarcely matched for rich effect. *Speciosa* or *Newmani* growing only 2 feet high, July to September, orange yellow; *californica*, 5 feet, deep yellow, blooming in July; and *laciniata*, 3 feet high, August and September, pale yellow blooms, are some of the best.

CHAPTER VI

A FURTHER SELECTION OF HARDY BORDER FLOWERS

ALL the plants mentioned in this list are hardy and bloom year after year, if planted in well dug soil enriched with manure. The best time to plant (unless otherwise stated) is in late October and throughout November. However, in mild weather and when the ground is fairly dry, planting is often carried out during the winter. Usually it is best, if planting is not completed by early December, to relinquish the work until February or March. But much depends on the soil. If this is light and dry, winter planting is often satisfactory, but if the land is heavy, cold and wet, planting should be done only in autumn and early spring.

ACANTHUS MOLLIS (*Bear's Breech*).—The Acanthus, or Bear's Breech, has the double merit of possessing handsome leaves and stately though not showy flower spikes. The former are large and deeply cut, the latter rise to a height of about 2 feet, and are of white and purple colouring. This is scarcely a plant for the mixed border unless placed not far from the front, where its attractive leafage will run no risk of being smothered. It is rather a plant to fill a lawn bed with, and should be put out in well dug soil that is fairly light. Flower spikes appear in July.

ACHILLEA (*Milfoil*).—The most generally useful of the Milfoils is Achillea Ptarmica, The Pearl. It grows about 2 to 2½ feet high, and in July freely bears its small, double, white flowers that are attractive in the border and admirable for cutting for vase decoration. Any ordinary border soil is suitable; even in light soil or in a moderately shady border the Achillea is at home. It is easily increased by dividing the clumps in October. The rose-coloured Milfoil (*Achillea rosea*), about the same height as the white, is also well worth growing. This, too, thrives without any special care in the flower border. Achillea Eupatorium is a more vigorous plant than either of those named. It grows 3 feet or more high, and is altogether a coarser kind. The blooms, which are yellow, are produced in flat bunches, and they have the merit of lasting from July until September. The yellow colouring is rather dull, and it cannot be termed a showy plant, but its easy cultivation, its prominent and very lasting flower heads, render it worthy of notice.

ALSTROEMERIA (*Peruvian Lily*).—Few amateurs grow the Peruvian Lily. As of course one cannot grow everything, this is perhaps one that may conveniently be left out. But let us see what are its recommendations. It flowers in July; its blooms are chiefly of orange and red shades: the plants grow about 2 feet high, and they will thrive in a shady border. One is commonly advised to grow them in a well drained, warm border facing south, but I have seen them thriving on a border facing east in Gloucestershire. The roots are tuberous, and need a soil through which the winter rains pass readily. In heavy land the roots perish during winter. But any ordinary soil may be made suitable for them by digging in some leaf soil and sand. The roots should be planted in October 5 or 6 inches deep, allowing about 12 inches between each. If on a shady border there will be little danger of the soil becoming dry, but on a sunny border this must be guarded against by watering when necessary. Perhaps one of the reasons why the Peruvian Lily has gone out of fashion is because people complain that they do not last long in bloom, but more often than not this is because the faded flowers are not picked off and so seed forms. And this, as everyone knows, puts an end to the blossoming. The commonest of all is *Alstroemeria aurantiaca*, 2 to 3 feet high, with yellow, red-streaked blooms. *Peruviana* has flowers of brown and purple shades; those of *chilensis* vary through many shades; while in *pelegrina* white and purple are the predominating colours.

ANTHERICUM (*St. Bruno's Lily*).—*Anthericum Liliastrum* (St. Bruno's Lily) and *Anthericum Liliago* (St. Bernard's Lily) are two little border plants, growing some 1½ to 2 feet high, that bear beautiful white flowers in June. The blossoms of *Liliastrum* are larger than those of *Liliago*, but the latter flowers more freely. *Liliastrum major* has larger flowers than the type. They thrive in ordinary, well dug garden soil, and are suitable for planting near the front of the border. *Anthericum ramosum* is another kind, with small white flowers numerous produced on branching stems. Propagation is effected by dividing the roots in autumn.

ASPERULA ODORATA (*Woodruff*).—*Asperula*, or in plain English, reader, the Sweet Woodruff, that often must have perplexed you when in some woodland nook a fragrance filled the air and you were unable to discover whence it came. It is a charming little plant that loves to hide in the woodland, where its white flowers and rich green leaves form a dainty carpet fit for the fairies. Something of a weed, perhaps, yet worth growing in gardens if only for the reason that it is an excellent little plant for shady spots. It comes readily from seed, and once established will quickly spread if left undisturbed. There is a charming blue Woodruff (*Asperula azurea setosa*), a hardy annual. Seed is sown in March outdoors where the plants are to bloom. As a carpet plant for the shady border it is most useful.

ASPHODELUS (*Asphodel*).—The only *Asphodel* that garden lovers need trouble to grow is the giant kind, *Asphodelus ramosus*. This

is an attractive plant, with slender, almost grass-like stems and white blossoms that open in May. It grows about 4 feet high, prefers a moist soil, and is happy in a shady border.

ASTRANTIA.—This is one of those unfortunate border plants that have no popular name, and perhaps for that reason is little seen outside the gardens of "those who know." It is by no means a showy plant, yet it has conspicuous merits, not least of which is its willingness to thrive in a shady border. The most generally useful sort is *Astrantia major*. This grows about 3 feet high, possesses attractive foliage, and in July sends up bloom spikes that are crowned with dry looking, pink-brown flowers. It is not a plant that I would recommend for the "best" border, but it should not be lost sight of. Any ordinarily well tilled soil suits, so no special preparations need be made on its account.

DOCCONIA (*Plume Poppy*).—The Plume Poppy is a particularly handsome border plant, handsome in its large, elegant leaves, which are of sea-green colouring above and grey beneath; handsome, too, in its plumes of small, cream-coloured blossoms that tower 4 to 5 feet high or more above the foliage. Add to these recommendations the fact that it blooms in August, a month that is not distinguished by the opening of many fresh flowers, and it will be seen that here is a plant of no ordinary value. It is to be classed among the aristocrats of the flower garden, since elegance of form is its striking characteristic. It is seen at its best in a lawn bed; planted in the mixed border much of its beauty is lost. It thrives best in a fairly light, well drained soil, but the ordinary border soil, if not sodden in winter, has no terror for it. An increased stock may be obtained by dividing the plants in October; this is also the best month to plant. A new form is now catalogued by nurserymen called *Giraldi purpurea*, with silvery grey leafage and white flowers, followed by crimson-brown seed pods.

CAMPANULA (*Bellflower*).—I have described the Peach-leaved Bellflower and Canterbury Bell separately, as these are two of the most useful sorts of *Campanula* the amateur can grow, but there are many others that have claims to distinction. A bold, handsome plant, growing some 4 to 5 feet high, is *Campanula latifolia*. There is also a white variety, *latifolia alba*. These are admirable plants for a shady border, and grow with a minimum of care on the cultivator's part. A variety called *macrantha*, with purple blooms, is also to be strongly recommended. It is a vigorous plant, reaching a height of 4 to 5 feet, and flowering freely. A new *Campanula* called *Fergusoni* is well spoken of as a plant for the front of the border. It has pretty blue flowers on slender stems. The clustered Bellflower (*glomerata*), growing from 18 to 24 inches high, bearing clusters of purple blossom at the top of its growth, is a showy plant, of which there are several forms now grown in gardens—*alba*, *acaulis*, with quite short stems and a fine tuft of blue purple flowers; *davurica* a sturdy plant with showy purple bloom. The Nettle-leaved Bellflower (*Campanula*



THE CHIMNEY BELFLOWER (*CAMPANULA PYRAMIDALIS*).

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Trachelium), blue, and its variety, *alba*, white, are sturdy Bellflowers, almost as well able to take care of themselves as the Rampion (*Campanula Rapunculus*). Neither is quite choice enough for the flower border, although for the rougher parts of the garden they are well suited. The stately Chimney Bellflower (*Campanula pyramidalis*) produces a flower spike 4 to 6 feet high, and lovely blue flowers cluster thickly about it for the greater part of its length. This and its white variety, a counterpart of the blue except in colour, are two particularly handsome plants that are more commonly grown for greenhouse decoration than for border display; yet they are scarcely excelled for the latter purpose. They have, however, the disadvantage of not being true perennials; the finest flowers are obtained when fresh seed is sown each July, to produce flowering plants the next year. There are many most beautiful dwarf-growing *Campanulas*, but these are suitable rather for the rock garden than the flower border. One of the best of them, the Carpathian Harebell (*Campanula carpatica*), is, however, a splendid plant for the border edge when the border flanks a paved or gravel path. It quickly develops into a large tuft that trespasses beyond the border, and so is liable to disfigure a grass verge. The accompanying illustration shows a fine tuft of this lovely Bellflower. All the *Campanulas* I have named are easily raised from seed sown in May or June in boxes of sandy soil covered with glass and placed in the shade. It is best to grow the little plants in pots for the first summer; keep them in a cold frame during the winter, and plant out the following spring. All except *Campanulas pyramidalis* and *Rapunculus* are true perennials, and may be increased by dividing the tufts in October.

CENTRANTHUS (*Valerian*).—Those who have spent their holidays in the Isle of Wight must often have admired the beauty of those plants that throng the rough walls of gardens near the sea and grace them with a profusion of rose-red blossom. They must surely have marvelled also at the luxuriant growth of the plants that have little visible means of support. But probably the roots have found a way through the cracks and crannies of the walls to the soil beyond, for this is what all good wall plants have a knack of doing. Well, to come to the point, this is *Centranthus ruber*, or red Valerian. Judge now whether you would care for it in the flower border. It has the merit of being able to look after itself, and if business makes a big demand upon your time, this is a consideration not lightly to be disregarded; it also lasts a long time in bloom, July and August finding the flowers at their best. The florist, always alive to the necessity of being up to date with varieties, now offers a white *Centranthus* (*alba*), and *coccinea*, which is described as having scarlet blossoms, but alas for the florist's scarlet! it is rarely more than a red, and sometimes it is scarcely better than a pink. The *Centranthus* does not lend itself very readily to division as a means of increase, but it is easily raised from seed sown in May in boxes of sandy soil out of doors.

CENTAUREA (*Knapweed*).—The two most familiar *Centaureas* are the lovely blue Cornflower (*Centaurea Cyanus*) and the Sweet Sultan (*Centaurea fragrans*), but these are annuals only, and are referred to elsewhere. There are one or two good perennials among the *Centaureas*, although they are not attractive enough to appeal to all flower lovers. Quite one of the best is *Centaurea ruthenica*, growing 4 feet high, with pretty, deeply cut foliage and pale yellow blossoms. *Centaurea glastifolia* and the giant golden Knapweed (*macrocephala*) are others worth mention. Both have golden yellow flowers, but while the former grows only 3 to 4 feet high, the latter, as befits one so named, is a very vigorous, large-leaved plant, quite 5 feet tall, and is suitable for the back of the flower border, or some rough part of the garden. The *Centaureas* bloom in July; they are increased by dividing the clumps in early autumn.

CHELONE.—Here is a disappointing flower. I only mention it so that the reader may not trouble to grow it. It is hardy and perennial, which may, perhaps, seem in its favour, but so are those broad-leaved Plantains that disfigure the lawn; very perennial and very hardy, are they not? We need other qualities than these in our border flowers. The *Chelone* grows about 2½ feet high, has handsome dark leaves that are, I admit, all the catalogue claims for them; but the flowers, they are altogether too disappointing. When, in July, the pink buds show, the grower is naturally on the tiptoe of expectation, but, alas! when he thinks they are about half grown, lo, it is all over, and the buds are blossoms, and dirty pink blossoms at that! No, I will not say how it is to be increased nor when it should be planted. The catalogues say that *Chelone glabra* is finer than *Lyonii*, which is the one I have. Alas! I have not sufficient faith in *Chelone* to test it.

CIMICIFUGA (*Snakeroot*).—It seems a pity that such a pretty plant as this should be known by the ugly popular name of Bugbane or Snakeroot. There are three chief kinds, and all are tall-growing, graceful plants, with white or creamy white flowers in late summer or early autumn. Ordinary border soil suits them well, and they are useful for the shady border. They are especially valuable in that they do not begin to bloom until many of the other border flowers have passed their best. *Racemosa*, the Black Snake Root, growing some 4 or 5 feet high, and bearing tall spires of white blossom, is particularly handsome. It is at its best in August and September. *Cordifolia* is less vigorous but equally graceful. *Simplex* is one of more recent introduction and to be recommended equally with the other two.

COREOPSIS (*Tickseed*).—*C. grandiflora* is one of the finest of all yellow flowers, and the plants last in bloom for many weeks. It is, however, a doubtful perennial, and a supply ought really to be raised each spring from seed to blossom the following year. It grows 3 or 4 feet high. *Coreopsis lanceolata*, growing 3 feet tall, and *C. auriculata*, reaching a height only of 2 feet, are perhaps the best of the true peren-

nial *Coreopsis*. All those named are distinguished by slender, elegant growth and fairly large yellow flowers. Some of the annual sorts are very showy plants, and reference is made to them on another page.

CRAMBE (*Ornamental Seahale*).—This is one of those really handsome, hardy plants that have never made much progress in popular favour. Why, it is difficult to conceive, but there it is. Let me then urge all those who wish to have a really striking and at the same time uncommon flower bed on their lawn, or group in the border (although it shows best in a lawn bed), to plant *Crambe cordifolia*. It makes a fine, bold specimen, with large, handsome leaves, and in July these are surmounted by tall, branching flower stems that yield a mass of small white bloom. It is a pity to put a plant of this kind in poor soil, for then it can never do itself justice. But in deeply dug, moderately heavy soil, its vigour is surprising and, in this case, the stronger the plant grows the more likely is it to bloom. Plant in early autumn. It may be increased by dividing the roots in October.

DORONICUM (*Leopard's Bane*).—There are 2 *Doronicums*, but there is only one *Doronicum*, and it is important to grow, not the former, but the latter. To give the one *Doronicum* its common or everyday title is to call it Harpur Crewe, for this is the variety that excels the common sort in every way that matters. This is one of those important plants, for it boasts of two distinct names. If you order *Doronicum plantagineum excelsum* you will get variety Harpur Crewe, and *vice versa*. When we have a choice of names, let us by all means choose the English one. The *Leopard's Bane* is one of the earliest of border flowers to open. It grows about 2 feet high, and bears large yellow Daisy-like blooms on long stems, blooms that open in April, and give most welcome colour to the border, while for home decoration they are most useful. Harpur Crewe seems to have no preferences, for it thrives wherever it is planted. It is as well to know that so accommodating a flower is happy on a shady border. With such a plant as this obtainable there is no excuse for a flowerless April, even if your garden is innocent of bulbs. It is not a bad plan to take up and divide the plants as soon as their blooms are over, if it is wished to increase the stock, for then they become thoroughly established before the blossoming season comes round again. They may, however, be divided and replanted in autumn.

ECHINOPS (*Globe Thistle*).—This is one of the quaintest flowers imaginable, and so unlike everything else in the border. It has grey-green indented leafage, and in June and July this is surmounted by rounded flower heads, like little balls of blue. It is a useful plant for giving a restful tone to the gaudy flower border, whose garish colouring is sometimes overpowering. The *Globe Thistle* is not happy in heavy, clayey soil, and it does not like being disturbed. Having said so much one has said almost all that is of importance

about its cultivation. October is the best time to plant. *Echinops ruthenicus*, growing 3 or 4 feet high, and *Ritro*, not quite so tall, are the two best.

EPILOBIUM (*Willow Herb*).—Those who know the rivers of their own country must often have noticed, on the banks, clumps of the giant Willow Herb, topped by its beautiful, deep rose coloured flowers. It is perhaps not choice enough for the flower border, but it is admirable for planting in damp places in the wild garden, or by the stream-side, for its home is by the water, and it naturally loves a moist soil. The Willow Herb is a lovely plant, especially when massed in large groups. There is no need to give elaborate directions as to its cultivation, or even directions at all, for it "grows of itself." It may be increased by dividing the clumps in autumn, if necessary, but as a rule it increases quite rapidly enough without the gardener's attention. There is a beautiful white variety (*angustifolium album*). I recently saw this flowering on the bank of a pool in Messrs. Wallace's nursery, at Colchester, and it struck me as being very beautiful, and well worth planting with the ordinary rose-crimson *angustifolium*.

ERYNGIUM (*Sea Holly*).—Readers of these pages who take delight in searching for wild flowers may, when their peregrinations led them towards the seaside, have found the Sea Holly that grows freely in sandy wastes in some districts. I used to find it abundantly on the Sussex shore not far from Bognor. Even in a wild state its glistening, bluish stems and leaves, and quaint, prickly flower heads impress one; it always looks such a clean plant, as though it were carefully syringed every day, and one can only marvel how it manages to exist, let alone develop, in the sand and shingle that serve its roots for a home. The Sea Hollies recommended for the flower border are an admirable race of plants. They have more vigour than the wild sorts, and the glistening blue of the leaves and stems that is their characteristic is even more pronounced. As one might expect, they dislike a cold, heavy soil; one that is well drained, that is not made sodden by the winter rains, is where they grow best. Two sorts that stand head and shoulders above the rest—not necessarily in actual stature, but in point of merit—are the Amethyst Sea Holly (*amethystinum*) and Oliver's Sea Holly (*oliverianum*). The latter is the bolder plant, growing 3 feet, while the former is only about 2 feet high. The wonderful blue colouring of the whole plants is of great charm, and marks them out as distinctive. They are of great value as affording soft colour tones in the flower border full of brilliant blooms. The Sea Hollies should be planted in early autumn, and the best way to propagate them is from seed, which may be sown either in spring or autumn. The spring-raised plants should pass the first winter in a cold frame. Autumn-sown seeds, too, are kept in a cold frame throughout the winter.

FERULA (*Giant Fennel*).—I wish I were able to show an illustration of each of the plants I describe, for a photograph tells at once what



A CHARMING BELLFLOWER FOR PATH MARGIN (CAMPANULA
CARPATICA).



SEEDLING PINK SELF SOWN IN A GRAVEL WALK.

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many words fail to convey. However, I am fortunate in having a picture of the Giant Fennel, and this, I think, shows what a remarkable plant it is, and yet how little grown. The Giant Fennel is a noble plant for the garden, and is seen at its best when grown alone, say, in a lawn bed, for the elegant leafage is one of the chief attractions. The plant illustrated is growing in a garden in Lancashire, so it may readily be imagined how hardy it is. The tallest and the finest sort is called *tingitana*, which throws up a giant, much-branched flowering stem, 8 to 10 feet above the fern-like leaves. The blossoms themselves are not of much account, being quite small and inconspicuous. *Ferula communis*, also a giant grower, has the additional merit of autumn-tinted leaves in due season. If the Giant Fennel is to attain such proportions as are characteristic of the plant at its best, it needs to be left undisturbed for some years. It should, therefore, be put in deeply dug soil when first planted, and early autumn is the best time for this. Raising it from seed is a slow business, for the seedlings do not bloom for several years, and dividing the roots is not very satisfactory. The best way, then, is to buy a few plants. The Giant Fennel is not a plant that one needs to buy very often, for a few go a very long way in most gardens.

FUCHSIA.—There are several most beautiful hardy Fuchsias, hardy, at least, in all except north midland and northern counties, and even there, if the roots are protected by a covering of ashes or leaves, advisable in any case, they are likely to pass the winter unharmed. Even when cut to the ground by frost, as they may be in cold gardens, they will grow again vigorously in spring, if the roots are protected. As the flowers are produced by the new shoots, all is well, and the harvest of blossom is abundant enough. The hardy Fuchsias at Kew make a brave show in August and September, and there they are grown in lawn beds, which is perhaps the best way to use them. In warm districts, such as the sea coast of Devon and Cornwall, the Fuchsias, as many readers must know, grow into splendid bushes, and hedges are formed of them. But such luxuriance, alas! is not for less favoured gardens. Three of the best of the hardy Fuchsias are *gracilis*, *macrostemma*, and *Riccartoni*; the latter is the hardiest of all. If a Fuchsia hedge is wanted, this is the sort to plant. If the bushes become crowded with shoots some of the older ones should be cut out in March; no further pruning is needed. A well drained and not too clayey soil is best for them, because this is warm in winter. They ought to be planted not later than October, so as to have a chance of making fresh roots before winter. *Fuchsia gracilis* is of slender, graceful growth, with reddish flowers; *macrostemma*, a sturdier plant, has bright red flowers; while *Riccartoni*, with blossoms of similar colour, is of erect rather than drooping habit. The height to which the hardy Fuchsias will grow depends largely upon the climate of the district in which they are planted. They may grow from 3 to 6 or even 8 feet high.

GALEGA (*Goat's Rue*).—Some readers may possibly know this plant under the name of French Lilac, and by some stretch of the imagination the pretty little bunches of lilac-coloured blossom may perhaps be found to bear some resemblance to Lilac. It belongs to the Pea family, and the flowers, which are like tiny Sweet Peas, are clustered in bunches that smother the plants in the month of June. This is an untidy plant when its blossoms are over, and for this reason is not to be recommended for the mixed border, but while it lasts in bloom, which it does for several weeks, it is scarcely surpassed for showiness and free flowering. There are three sorts usually grown—*officinalis*, with lilac flowers; *alba*, white; and *Hartlandi*, the best of all, a vigorous, free-flowering variety, with lilac and white blossoms. A new variety is now catalogued, called *Duchess of Bedford*; it is described as "a great beauty, with lavender-blue and white flowers." Any ordinary soil will grow the Goat's Rue, but it is well not to plant in too shady a spot, or there will be straggling growth and unsatisfactory blossom. The plants grow about 3 feet high, and may be planted any time from October to March, although early autumn is by far the best. They are easily increased by dividing the clumps in autumn.

GENTIANA (*Gentian*).—There are many Gentians in cultivation, but I shall only recommend a few for the flower border. Others are described in the chapter dealing with rock plants. The loveliest of all is the *Gentianella*, though, being dwarf growing, it is only suitable for an edging. The plant is quite small, the leaves scarcely above the soil, yet it bears large tube-shaped blooms of the most intense blue. Some gardeners have no success with it, and it does indeed seem a plant of moods. I have seen it freely used as an edging plant, and thriving without any especial care. In other gardens, where perhaps more care is taken, it will scarcely live, let alone flourish. Its chief needs seem to be a fair depth of good, loamy soil, one that keeps moist without getting sodden. Its exquisite flowers open in June. It is readily increased by dividing the roots, and this is best carried out as soon as the blooms are over. In light, dry soil this beautiful plant has no chance at all. It is well worth while going to some trouble with it, for a broad margin of *Gentianella* in full bloom is a glorious sight. *Gentiana asclepiadea* is easily grown, and, like other Gentians, it thrives best in deep, moist soil in a half shady spot. The long tube-shaped flowers, which come in late summer, are blue with a purple tinge, and are produced in the leaf axils of the 2 to 3 feet high stems. *Andrewsi*, growing about 2 feet high and having blossoms of similar colouring, is another Gentian that presents no difficulty to the cultivator if planted in early autumn or spring in good, loamy soil.

GEUM (*Avens*).—The several sorts of Avens that are worth growing are dainty plants, but though dainty in appearance, are not fastidious from the point of view of the cultivator. From a tuft of strong leaves

PAMPAS GRASS

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they produce 2 feet high flowering stems that give numerous Strawberry-like blossoms of rich colour shades. During recent years many fine varieties have been introduced, and no garden can now afford to do without Geum. Undoubtedly the showiest of all is *Geum chilense* (coccineum) plenum, with brilliant scarlet semi-double blossoms; the single-flowered sort, too, is an excellent plant. *Geum Heldreichi* has orange yellow flowers and forms a splendid bit of colour. *Heldreichi splendens* is a still finer plant, with large flowers of richer colour even than *Heldreichi*. *Geum miniatum*, a variety of *chilense* (coccineum), is also well worth growing; it has orange yellow flowers. The Geums grow well in ordinary border soil and bloom for weeks together, often from early until late summer. They are essentially plants for the inexperienced amateur, for they give no trouble and provide a lot of blossom. It is a simple matter to increase one's stock by dividing the roots in October, the best month to plant and replant.

GYNERIUM (*Pampas Grass*).—This noble plant, which is so fine in September and October, is generally well known. I have called it *Gynerium*, a name that is no longer botanically correct. So far as botanists are concerned, the *Gynerium* is now *Cortaderia*, but it is the plant rather than the name that now interests us. It is unapproached for elegant leafage (though what an edge the leaves have, and how they cut if one is not clever in handling them!) and graceful flowering. Rough winds mar its beauty more quickly than anything else. If we would preserve its attractiveness for as late in the autumn as possible, a sheltered spot should be chosen for its planting. There is no difficulty about establishing it if planted in ordinary well dug soil and left alone. It is as important to leave it undisturbed as to plant it well. A mulch of rotted manure applied in April and forked beneath the surface soil is of great help to the *Pampas Grass*. Its growth will be more vigorous and the silvery plumes all the finer for this attention. The best times to plant are early October and late March or early April. Increase is readily effected by dividing the clumps as soon as the flowers are over, or in spring, but the resulting plants will not develop into good specimens for several years. *Gynerium argenteum* is the common *Pampas Grass* with the silvery white plumes on stems 6 to 10 feet high, but there is one called *jubatum* which has rose-coloured plumes.

HELENIUM (*Sneezewort*).—This is a sturdy, strong-growing perennial that is quite a beginner's plant. *Heleniums* are, on the whole, of somewhat rampant growth, blooming chiefly in late summer, and at their best in July and August. Quite the finest of all that I have seen is *Helenium pumilum magnificum*. I have it in my garden, and I cannot speak too highly of its rich yellow blossoms, like golden Asters, that open in July. The plant grows about 2½ feet high, and blooms freely. It is to be recommended as one of the best golden yellow hardy flowers in cultivation. I see that one nurseryman announces it as one of the best twelve hardy perennials. This seems

high praise when one considers how many hundreds of plants come within the definition of hardy perennials, but I believe it is justified. My flower border in July would be very much poorer, failing its presence. The other Sneezewort that is most generally useful is *autumnale*, growing 4 to 5 feet high, and blooming in August and September. It is a fine plant for placing at the back of the flower border ; so, too, is its variety *striatum*.

HESPERIS (*Rocket*).—This is a fine old garden plant that, whether for good reasons or not, has fallen from popular favour ; it is no longer commonly grown. If real success is to reward the cultivator, the plants should not be allowed to remain undisturbed for more than three years. It is commonly advised that they should be renewed from cuttings ; indeed, these root readily enough in a closed frame in spring, or even in the open border if taken from the new shoots as they start to grow, but the plants are also easily increased by division of the roots in early autumn. The Rockets need good soil that has been well prepared by digging and manuring. The finest of all is the double white form, although the most vigorous is the original lilac-pink variety with single flowers. The Sweet Rockets, charming as they are, are only to be recommended to those who are prepared to take more trouble in matters of cultivation than the hardy border perennial as a rule demands.

HEUCHERA (*Alum Root*).—The Heuchera, with its tufted habit of growth and, in May, its profusion of flowering stems, each bearing a mass of small flowers, is far more worthy of general cultivation now than it was ten years ago, for, thanks to skilled cross fertilisation, many charming sorts, great improvements on the old plants, are now to be had. In fact, the Heuchera of to-day is a plant worthy of any flower border. Some of the finest sorts have flower spikes 2 feet long, and if the blossoms of some are of dull, unattractive colouring, why there are others whose blossoms are bright. The old Heuchera *sanguinea*, with bright red blossoms, is still one of the gayest of the lot, although it lacks the vigour of many of the newer sorts. It is a fine little plant for the front of the border or for the rockery. This, in common with all the other Heucheras, should be grown in a clump or mass ; then only are they seen at their best. The slender flower stems, smothered in small blossoms, are truly graceful and invaluable for cutting. *Zabeliana*, rose pink ; *Rosamunde*, coral pink ; *Edge Hall Hybrid*, rose ; *Flambeau*, flame colour, are some of the most distinct. Those with dull pink flowers, although admirable for providing cut blooms, are not showy enough for the border. They thrive in ordinary well tilled soil and appreciate that which is well manured. When the clumps become crowded they are easily taken up in autumn and divided. Thus an increase of stock is effected and the plants are given a fresh start in life.

HIERACIUM (*Hawkweed*).—There are only two Hawkweeds worth growing from the point of view of garden display, and these stand



EVERGREEN CANDYTUFT, IVY AND ROCK ROSE DRAPING AN OLD WALL.



head and shoulders above the rest on account of their rich red and yellow blooms respectively. *Hieracium villosum* has yellow flowers, those of *aurantiacum* are orange red. If only one is grown I should advise readers to choose the latter; they grow like weeds, and, indeed, soon spread if not kept in check. The flowers, which are of the Daisy family, are freely produced on branching stalks some 18 inches high, which rise from the pretty leafage; the plants continue to blossom for weeks together, from late June onwards. *Hieracium villosum* does not grow quite so tall as *aurantiacum*, but it has larger flowers, which are freely produced.

IBERIS (*Evergreen Candytuft*).—This is a desirable plant for the margin of the flower border, for covering low walls, or for the rock garden. Its dark evergreen leafage and, in April and May, the profusion of pure white blossoms, render it a valuable garden plant. In the flower border it soon spreads, and if allowed to overrun the grass verge, will soon spoil it. It is easily increased by cuttings taken in July and inserted in sandy soil under a bell-glass or hand light on a shady border. *Iberis sempervirens* is the old evergreen perennial Candytuft; *gibraltarica*, a beautiful sort with pale lilac flowers, is liable to perish when grown in the border, but in a dry sunny rockery it is happy enough; near the sea it is said to be quite hardy. *Coriæfolia* has finer flowers than the common *sempervirens*, and comes into bloom two or three weeks later. I have never, I think, seen finer Candytufts than those at Kew growing on the top of a rough wall facing south-west, over the face of which their handsome foliage combines with their lovely flowers to make up a picture of rare charm. I am able to give an illustration of this beautiful bit of spring gardening.

INULA.—This is rather a coarse growing plant, with somewhat untidy leaves and large yellow flowers of the Daisy family. This description does not, I admit, tend to impress the reader in its favour, but there are one or two *Inulas* that are good border plants and still more useful for putting out in rough places, such as the wild garden. They thrive well in openings among large trees, even in grass land, if a large hole is dug at the planting and they are given a satisfactory "send-off." The finest of all is a comparatively new one, called *Inula glandulosa superba*, with large, handsome golden yellow blooms. For planting in the front of the flower border, *Inula ensifolia* is to be recommended; it is of neat habit, only grows about 12 inches high, and produces its yellow blooms for several weeks together.

LAVANDULA (*Lavender*).—It surely needs no words of mine to extol the Lavender; its sweetness is well known, and most country gardens, at all events, possess it. There would seem to be little to say of a plant that is so commonly grown, but I should like to see it more often in suburban gardens. Why it is so frequently a failure there is, I think, because it is planted in heavy, ill-dug soil, which it most dislikes. Unless the ground is well drained and, therefore, free from stagnant moisture, it is hopeless to expect fine Lavender. In

light soil it is at its best, and grows freely enough, especially if in a sunny spot. Lavender makes a splendid hedge. I know of one in a Worcestershire garden that is at least 5 feet through and some 3 feet high. It is planted in a narrow border on the top of a little brick wall where, one would think, there was scarcely enough soil to sustain it. But I have no doubt that it had a good start in the way of well dug ground and, given a good start, most plants may afterwards be left to fend for themselves. So it is with the Lavender. How delightful it is to be able to gather the Lavender sprigs in summer time, and, after drying them, hand them over to the housewife for use among the linen, or for room decoration. Plant, then, in a light soil, or if the soil is clayey, make it suitable by mixing with it sand, road grit, and decayed leaves. Then shall the Lavender, if planted in October or even in March, grow well and reward you with its harvest of fragrant bloom, filling the air with sweetest scent. If there is no room for a Lavender hedge, then plant it among the Roses; above all, among the China Roses. Then the summer through there shall be an association of attractive grey leaves and lovely pink flowers. The way to increase Lavender is to take cuttings in September. If inserted in sandy soil in a cold frame, they will form roots readily.

LIBERTIA.—I am rather doubtful as to the advisability of including this in a selection of hardy border plants; it is little known and little grown, but that, I am sure, is no good reason for its exclusion. Rather do I conclude from this that I should draw attention to its attractiveness. I have only seen one kind, namely, *Libertia formosa*, and that, I believe, is the only one hardy enough to be worth growing by amateurs. It is a plant belonging to the great Iris family, and makes an elegant clump of looping leaves that in summer is crowned by the graceful spikes of white flowers. The leaves are evergreen, and thus *Libertia* has an advantage over many favourite border flowers which, however, make up for their melancholy lying in the autumn by a glorious birth in spring. The *Libertia* is one of those plants that are not to be put in the hardy flower border, for its full beauty is seen only when you can walk all round it. Let us, then, give it a bed on the lawn in not too exposed a position, lest its foliage be disfigured by rough winds in winter. A specially prepared soil, consisting of half peat and half chopped turf, is recommended for this beautiful plant. March and early October are the best times for planting or dividing the clumps, if it is wished to increase the stock.

LINARIA (Toadflax).—There are several charming Toadflaxes, but only one or two among the perennials can be said to have any value as border plants. The best is the Dalmatian Toadflax (*Linaria dalmatica*), a striking plant growing 3 or 4 feet high, with rich yellow blooms that are freely produced for weeks together, from June onwards. It needs little care in cultivation, and the only preference it has is for a well drained soil. The cultivator must needs keep a watchful eye

on the Dalmatian Toadflax, for it is a stealthy plant and likely, as the season passes, to usurp a good deal more of the border than is its rightful due. The handsome wild Toadflax is a familiar sight on rough banks in country districts, and although perhaps not worth garden room, its variety, *Peloria*, with pale yellow blooms freely produced, is too good to pass over. The Kenilworth Ivy, or Ivy-leaved Toadflax (*Linaria Cymbalaria*) and its white variety are two charming plants for rough walls or dry mounds in the rockery; their roots seem to find sustenance when apparently there is nothing to sustain them, with the result that their pretty leaves and tiny blossoms are seen growing wild in the most unexpected places. It is scarcely likely that the gardener will wish to increase the Toadflaxes, since one does not, as a rule, want many of them, unless it is for the wild garden, where they are appropriate enough in quantity. Dividing the roots in autumn is the method adopted with *dalmatica* and *Peloria*, while the Kenilworth Ivy may soon be established in any suitable place by cutting off and planting the little rooted tufts that form at intervals on the runners or string-like growths.

LINUM (*Flax*).—Probably the brilliant scarlet Flax (an annual) is most familiar to amateurs generally, and scarcely any plant makes a more gorgeous display in so short a time from seed. But we are now concerned with perennials, and several sorts of Flax are among them. Only three are recommended as worthy of general cultivation as border plants. They are *flavum*, yellow; *Lewisii*, blue; *narbonense* and *perenne*, both of which have blue flowers. They are all graceful plants, with very slender stems, about 18 inches high, and crowned with shallow cup-shaped blooms of clear colouring. A rather light soil suits them best, but this provided, their cultivation presents little difficulty. They are perhaps more valuable in the rock garden than in the flower border, but towards the margin of the latter they are very beautiful, especially the blue sorts, for their rare colour. The blooms are light, not deep blue. They are best raised from seed sown in autumn or spring, the plants being kept in pots in a cold frame for the first winter. March is the best time to plant them when they are first obtained, for if planted in autumn a severe winter might prove too much for them, since they would not be well established.

LITHOSPERMUM (*Gromwell*).—The best kinds of this are really rock garden plants, although their low tufts are also charming at the front of the flower border. *Lithospermum prostratum* is a lovely blue-flowered plant that quickly forms a low patch of evergreen leafage, and in June smothers this in blossom. A new variety, called Heavenly Blue, is really an improvement on the old sort; it is stronger growing, and has flowers of brighter blue. Like most other low growing plants, the *Lithospermum* prefers a well drained soil, one that does not get sodden in winter. Then it passes through the cold, wet season safely, and increases quickly. There is no difficulty about raising a stock of plants from cuttings if these are taken in July, when the flowers are over,

and are inserted in sandy soil in a cold frame, or under a bell-glass kept closed and shaded for a few weeks.

LOBELIA.—The chief kinds of perennial Lobelia are *cardinalis*, *fulgens*, and *syphilitica*. The most popular of all is a variety of *fulgens* called *Queen Victoria*, having bronze-coloured stems and bright red flowers. *Firefly*, crimson, is another fine variety. *Cardinalis* and its variety, *Crimson Beauty*, are also handsome, although they lack the bronze colour in the stems that makes *fulgens* and its varieties so attractive. There are variously coloured forms of *syphilitica*, and although they are not quite so showy as the other two named, they have the merit of being hardier. The roots of *fulgens* and *cardinalis* are lifted in autumn and are stored away for the winter in soil-filled boxes in some cool greenhouse or shed, where they will be safe from frost. It is necessary to water the soil occasionally so that it does not become quite dry, or the roots may decay, just as they will if the soil is kept too moist. These perennial Lobelias are striking plants for the flower border in August, and add much to its attractiveness. They like a moist soil and not too sunny a spot. Plant in late March or early April.

LYCHNIS (*Campion*).—There are three perennial Campions to which the attention of the amateur should be directed, namely, the old red-flowered *chalconica*, *haageana*, with large showy flowers in all sorts of colours, and *Viscaria splendens*, with bright crimson-red blooms. *Chalconica* is already a favourite plant, and its value is scarcely to be over estimated. In July the flattish bunches of brilliant red bloom are very showy and last a long time in beauty. *Haageana* has tuberous roots, but, luckily, they are hardy, and there is no need to lift them every autumn as has to be done with some tubers, for instance, the *Dahlia*. *Viscaria splendens*, growing some 18 inches high, makes a very bright display, and is not easily surpassed as a plant to fill a flower bed with gay blossom. All are July flowering, and are planted in early autumn.

MERTENSIA (*Virginian Cowslip*).—There is not much showiness about this old plant, but its blue flowers that come in May and the greyish leaves are welcome to all plant lovers. While this and other *Mertensias* will grow in ordinary soil, they thrive best when a little border is made up for them with peat and sand intermixed, and when they are planted in a shady spot.

MIMULUS (*Musk*).—There is little to say of *Musk*, except that it is one of the sweetest and hardiest of flowers, and doubtless will always hold a high place in the affection of gardeners. It is a charming plant for an edging to a shady border, and may be increased by seed sown in spring, or by dividing the plants. The *Musk* (*moschatus*) likes a moist spot, and this it usually has when grown in the shade.

MYOSOTIS (*Forget-me-not*).—The *Forget-me-nots* are great favourites for the garden in spring, but they are not seen at their best in the flower border proper. The place for them is along the front



THE YELLOW FUMITORY (*CORYDALIS LUTEA*) COVERING ROUGH BANK.



JACOB'S LADDER (*POLEMONIUM CAERULEUM*), A BLUE-FLOWERED
HARDY PLANT.

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of the shrubbery, and in other places where they will not be disturbed, for the great charm of growing Forget-me-nots is lost if every spring, after the flowers are over, the plants are pulled up. There is at Kew a shrubbery, thinly planted, that is smothered with Forget-me-nots in May; they are allowed to seed and sow themselves. Plant them in a spot where from year to year they are left alone. Then and only then are the Forget-me-nots seen at their best. If, however, this is not possible, put them in the formal beds and borders in October. In spring, as soon as the flowers are past, take up the plants and put them in a reserve border. They will sow their seeds in great abundance, and the little plants will come up in hundreds, if not in thousands. All one has then to do is to thin out those not wanted. Leave them to grow until planting time comes round again in October. If I may venture to recommend one variety of Forget-me-not, I would say grow Sutton's Royal Blue.

POPPY (*Papaver*).—The Oriental Poppies that bear their great domes of scarlet, rose, and other shades in early summer are the brightest ornaments of the garden while they last, though, alas! they do not last very long, and they are none too tidy after their bloom is past. But one cannot do without them; the garden in June would not be itself if the giant red Poppies were missing. There are some beautiful colour shades among them now, but somehow one thinks of these Poppies as scarlet, and other colours do not please so much as the old sort. However, I must be up to date, so I mention some of the very newest varieties. One of the best of apricot colouring is called Mrs. Perry. Others are Princess Ena, salmon and apricot shades; Goliath, a fine scarlet; and Oriental King, deep red. It is an easy matter to raise these Poppies from seed sown out of doors in May. The plants will bloom the following season.

PHYSALIS ALKEKENGHI (*Cape, or Winter Cherry*).—The orange-coloured "lanterns" of this plant are now fairly familiar, but their value for border display in late summer and early autumn is not yet fully realised. The "lantern" is really an enlarged calyx, enclosing the fruit, and the bright orange colouring gives a most striking effect. A new variety called Bunyardi is of even more brilliant orange shade than the ordinary sort. The *Physalis* is a hardy perennial, but is only a success from year to year when grown in a warm and well drained border.

POLEMONIUM (*Jacob's Ladder*).—This plant has an old-fashioned name, and one would naturally expect to find it commonly grown in gardens, yet this is scarcely the case. Not the least of its merits is that it will thrive in a shady border, although it is quite happy in a sunny one; it has elegant, deeply-cut leaves and beautiful pale blue flowers, and is altogether a plant well worth growing by every amateur. Its best time is in July, although it begins to bloom in June and continues more or less into August. It dislikes heavy, clayey soil, although this may be made suitable by being well dug, and if leaf soil and road scrapings are mixed with it. Ground that gets very wet in winter

is not at all to its liking, but this can easily be remedied by having it thoroughly dug and made porous by the admixture of brick rubble. An increase of stock may readily be obtained by dividing the plants in October and replanting the pieces at once.

POLYGONATUM (*Solomon's Seal*).—This old plant would be difficult to surpass for a shady border that is not blessed with good soil. It thrives even under the shade of trees, and I have seen it happy close by Pines, where scarcely anything will grow. It seems to thrive best in light, sandy soil, and should prove a boon to those whose gardens are of this class. On the woodland fringe, in fact, in any half wild place, the Solomon's Seal is an admirable hardy plant. As a rule the plant spreads so freely itself that there is no need to adopt special methods of increase, but it may be as well to say that additional plants can be had by dividing the root stock in autumn.

POTENTILLA (*Potentil*).—This is a favourite border plant, with Strawberry-like flowers in various shades of colour, that thrives without any special treatment. In fact, ordinary border soil and casual attention are all the Potentils seem to need. There are many sorts, of which *hopwoodiana*, salmon and white; *Miss Willmot*, cerise; *Victor Lemoine*, red and yellow; *Le Vesuve*, *Louis Van Houtte*, *L'Acheron*, and *Eldorado*, all shades of red and yellow; *Formosa*, red; and *rupestris*, white, are a few of the best. It is readily increased by dividing the tufts in October.

RANUNCULUS (*Buttercup*).—The gardener usually sees quite enough of Buttercups in the fields and, if he is an untidy gardener, in the shape of weeds on the lawn. So his possible surprise at my mentioning them as garden flowers is quite pardonable. But I shall only recommend one, and that is certainly not a weed, at any rate in English gardens, namely, *aconitifolius flore pleno*, or more familiarly, "Fair Maids of France." This is a pretty, free-flowering plant with white blooms on stems 12 to 18 inches high. They come in early summer, and are so numerous on branching stems as to make a delightful show. The Fair Maids of France like a moist spot and are, in fact, quite happy with their roots in water. There has been for several years a charming group in the rock garden at Kew, planted by the side of a little stream.

SCABIOSA (*Scabious*).—The Caucasian Scabious (*caucasica*) is a handsome hardy perennial, and a splendid flower for cutting. It grows freely, and produces an abundance of large blooms on long stems throughout a long season, from July onwards. Those who value flowers chiefly for their merit for cutting should on no account be without the Scabious. There are many varieties; the typical sort has light blue flowers. The Scabious is readily increased by division in autumn.

SEDUM (*Stonecrop*).—The finest of the Stonecrops for the border is the Japanese (*spectabile*), which has large, thick leaves and, in late summer, big flat bunches of rose-coloured flowers. I should rather say it *was* the best until the advent of a new and improved variety



AN AUTUMN BORDER OF HARDY FLOWERS, JAPANESE STONECROP AND JAPANESE ANEMONE IN
THE FOREGROUND.

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called *atropurpureum*, which has flowers of a much deeper shade, and is altogether a more showy plant. This is one I can strongly recommend for the amateur's garden. It comes into bloom when many flowers are past their best, it lasts in flower a long time, and it is a favourite of the bees. Every sunny day they cluster about its blossoms, and this in itself is a recommendation to some gardeners. There is no difficulty about its cultivation at all; one simply plants it in October or March in well dug soil and leaves it alone. It is not happy in heavy, clayey soil, but much prefers one that is well drained and rather light. It may be increased by dividing the clumps in October or in March.

SILENE (*Catchfly*).—Perhaps the best of the Catchfly plants for the garden border is one called *orientale*. This has pretty greyish leaves, and tall, branched spikes of charming rose pink flowers that last a long time in beauty. It is easily raised from seeds sown in spring or summer to provide plants for the following year's blooming. They are sown in boxes placed in a cold frame, or even outdoors in a shady spot, and the plants when 2 or 3 inches high are planted in the reserve border, first, of course, being transferred to other boxes when an inch or so high. *Silene Schafta* is another beautiful Catchfly to be cordially recommended. As it grows only about 6 inches high it is useful in the border as an edging plant only; it is even more valuable in the rock garden. The tufted habit of the plants is an indication of the way in which they may be increased, namely, by dividing the tufts into several pieces, or seeds may be sown.

SOLIDAGO VIRGAUREA (*Golden Rod*).—If it were not that Golden Rod blooms in late summer and autumn, I doubt if it would enjoy the popularity that seems now to be its lot, for it is scarcely a satisfactory plant on its merits. The yellow flowers that come only at the top of the stem are not very showy, and they do not last fresh for very long. But they are late in opening, and therefore enjoy a certain popularity. There is no plant more easily grown. Any ordinary soil suits it, and it soon makes a big clump. The Golden Rod may be increased to any extent by dividing the clumps in autumn.

SPIRÆA.—The Goat's Beard (*Spiræa Aruncus*) is one of the finest of border plants; its vigorous growth, large, divided leaves and tall, creamy white spikes of flowers combine to make a plant of great worth. A few clumps in the hardy flower border give quite a distinguished aspect. The Goat's Beard is hardy, and if put out in well dug soil soon makes a fine clump. It is readily increased by division, but it is not wise to disturb it often; rather leave it alone, so that it may develop into the striking plant it is when well grown. *Spiræa Davidii* is a comparatively new sort, with rose purple flowers which, however, are not especially pleasing in shade. Do not plant this in the flower border, where it would probably clash with others; rather grow it in the wild garden, or in open spaces in the woodland. *Spiræa palmata* is remarkable chiefly for its very large and handsome

leaves. The best place for this is by the streamside in the wild garden, or by the rockery pool. The Meadow Sweet (*Ulmaria*) found growing wild by streamside in country districts, and *Spiræa filipendula* are pretty plants and worth a place in the flower border. Several new *Spiræas* have lately been introduced; they are for the most part handsome and worthy plants.

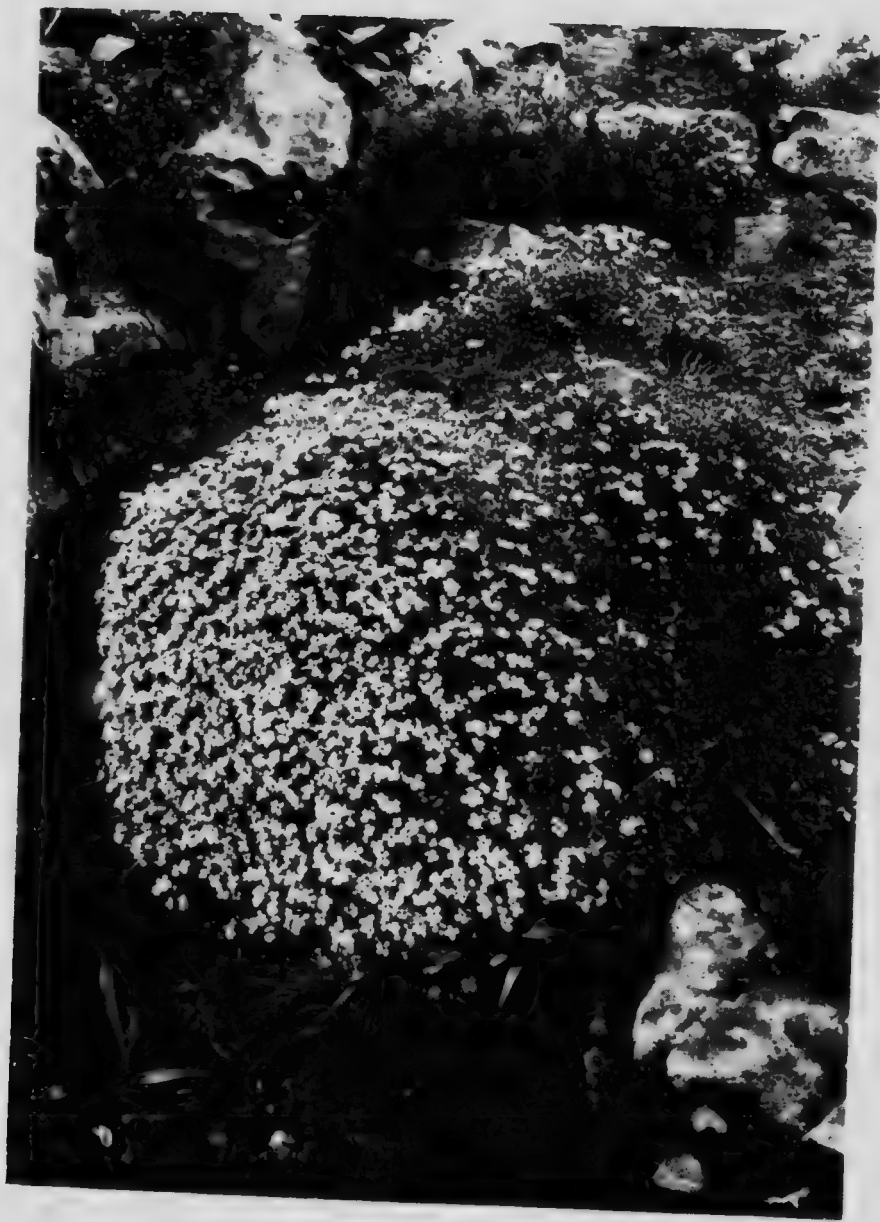
STATICE (*Sea Lavender*).—This is an old and deservedly favourite plant, valuable for the border on account of its "misty" effect and for the long time its blue-grey flowers last in full beauty. If the flower sprays are cut before fully open, they may be used for home decoration during the winter as "everlastings." The best of the Sea Lavenders are *latifolia* and *Limonium*, with blue purple blooms. These plants thrive best in rather light soil; one that is heavy and ill drained does not suit them at all. They are best raised from seeds.

THALICTRUM (*Meadow Rue*).—Those who value plants with graceful, elegant foliage should on no account omit to plant *Thalictrum*. There is, perhaps, none to compare with it for grace of leafage. The best of all are *aquilegiæfolium*, growing quite 4 feet high, and *adiantifolium*, that is only 2 to 3 feet high. The latter has leaves closely resembling in form the fronds of Maidenhair Fern. Both thrive in ordinary soil that is well drained and not too clayey, and increase from year to year if left undisturbed, soon forming fine clumps. An additional number of plants is obtained by dividing the clumps in early autumn or in spring. *Thalictrum minus*, too, is a charming plant, with small and very pretty leaves; 12 inches represents about the height to which it grows. The *Thalictrums* have flowers of creamy colouring and when open, in late summer, although not showy, they add to the value of an already attractive plant. For the sake of its flowers *aquilegiæfolium* is the best of all.

TIARELLA CORDIFOLIA (*Foam Flower*).—A pretty little plant with, in early summer, numerous spikes of creamy white flowers above its tufted leaves. It is very pretty at the front of the border, and is often planted in the rock garden. Anyone can grow the Foam Flower, and the pity is that more do not try. It grows in such soil as one may expect to find in any garden border, and is increased by dividing the tufts in autumn or in spring.

TRADESCANTIA (*Spiderwort*).—This is a good plant for a shady border, and on that account alone I include it in my list, for it is not showy enough to put in the flower border proper. *Virginica* is the sort commonly grown, and its evergreen leaves and, in summer, bluish flowers are sure to be admired. It should be planted in large groups and if left undisturbed, it will spread and form quite a pretty feature.

TRILLIUM (*Wood Lily*).—A pretty plant with large, white flowers on stems about 9 or 10 inches high that is invaluable for planting in shady places in the rock garden. It prefers a moist, peaty soil, and blooms in spring. *Trillium grandiflorum* is the kind commonly grown. The plants may be increased by dividing the roots in early autumn.



PURPLE ROCK CRESS (AUBRIETIA).

THE FLAME NASTURTIUM

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TROLLIUS (*Globe Flower*).—The *Globe Flowers* are showy, May-blooming plants that thrive best in a shady spot. They have pretty, more or less globe-shaped flowers, in various shades of yellow and orange. *Trollius europæus* is the common kind, with light yellow blooms; *asiaticus* has orange yellow coloured flowers and is really more handsome. Then there are several fine florists' varieties. They seem to thrive in any moist soil such as that in the shade usually is, and are easily increased by dividing the roots either as soon as the flowers are over or in early autumn.

TROPEOLUM.—Those favourite flowers that are commonly known as Nasturtiums in gardens are really *Tropeolums*, but I have included them under the name of Nasturtium. Some, however, are still called by their rightful name, and the finest is the Flame Flower, which all those who know their Highlands must have seen times out of number covering cottage walls with slender, luxuriant growths, smothered in late summer with brilliant scarlet flowers. I know of no brighter flower than this, and to see it at its best in northern gardens is to have memories of a wonderful flower picture. It seems to grow in the north with little exertion on the grower's part, but in southern gardens only care and much patience are likely to be rewarded with success. The reason is, I suppose, that it naturally prefers a moist and cool climate, and that the hot, dry weather that we (sometimes!) have in the south does not suit it. However, it can be grown in southern gardens, as may not uncommonly be seen. It has proved most successful in gardens in the south when planted on the north side of a hedge, and a Yew hedge is often chosen. The chief thing is to plant the tuberous roots in light soil, chiefly composed of leaf soil, and to put them 6 inches below the surface. March is a good time to plant. I have seen it very beautiful in Mr. Kingsmill's garden, at Harrow Weald, and in Messrs. Cooling's nursery, at Bath; there is, or was, a splendid plant of the Flame Flower planted on the shady side of a big Ash or Willow tree in the Bath nursery. It is a most erratic plant, for some who take no end of pains to establish it meet with no success, while others, who perhaps plant it on the chance of its growing, are rewarded with a brilliant display. There is this compensation for those who have failed again and again, that if they do eventually succeed they will have one of the finest flower displays it is possible to imagine. *Tropeolum speciosum* is its botanical name. *Polyphyllum*, a creeping plant, with handsome, yellow flowers, is very showy, and is best suited in a warm and dry place in the rock-garden. The greyish leaves, too, are pretty. This, like the Flame Flower, has tubers for roots, and is equally hardy, so that there is no need to go to the trouble of lifting them in autumn.

TUSSILAGO (*Coltsfoot*).—Let me hasten to explain that I am not going to recommend the common *Coltsfoot*, with which everyone is familiar as one of the earliest of all wild flowers. One sees quite enough of this on the river banks and other waste places in February.

It is very pretty and especially welcome, as it is one of the very few hardy flowers then in blossom. But the wise gardener will be content to admire its yellow blossoms at a distance; outside the garden it is a flower, inside it is a weed, and a very tenacious weed, too. No; the plant I wish to draw attention to is the Winter Heliotrope (*Tussilago fragrans*), which bears light purple flowers in late winter, flowers, too, that are fragrant. It can scarcely be classed as a choice plant, but for the sake of its earliness and fragrance it is worth noting. I do not recommend it for the border, but for planting in odd corners where it will be welcome enough when one is still waiting for the flowers of spring.

VERATRUM (*Hellebore*).—The white-flowered *Veratrum* is a striking rather than a showy plant. Its leaves are in themselves attractive and the 3 feet high, sturdy flowering stems, bearing greenish white blooms, are conspicuous in high summer, and are rendered more attractive by reason of the brilliant flower displays of other plants. *Veratrum nigrum*, too, is a striking plant of similar habit of growth, but with blackish purple blooms. They need to be grown in good soil. An increased stock may be obtained by dividing the roots in autumn.

VERBASCUM (*Mullein*).—The Mulleins are amongst the most remarkable of all hardy plants, and the accompanying illustration will give an idea of their attractiveness. They have large, woolly leaves and tall spikes of yellow blossoms. Sometimes one sees the *Verbascum* grown as a wall plant, and then the tall flower spikes, towering above the masonry, have a most striking effect. They are not at all difficult to grow, but prefer a soil that is well drained and rather light. In heavy, clayey soils they are not usually successful. One of the finest is called *Chaixii*; it will grow 6 feet or more high. This, together with *nigrum*, 2 to 3 feet high, yellow, and *phœniceum*, 3 feet, reddish purple, is perennial, and may be increased by division. *Olympicum* is the best of the biennial sorts that are grown from seed sown in April or May to flower the next year. It is 6 feet high, and has yellow flowers.

VERONICA (*Speedwell*).—The best of the hardy perennial *Veronicas* is that lovely blue-flowered sort called *longifolia*. It comes into bloom rather late in the summer and the brilliant blossoms on slender stems, some 2 to 3 feet high, are sure to be greatly admired. It is one of the best blue-flowered plants for the hardy border. It is readily increased by division. *Subsessilis* is another handsome, hardy blue-flowered *Veronica*. *Incana*, with greyish leaves, is an excellent plant for an edging, yet is rarely used for this purpose. The other day I was surprised to see it in a suburban garden, where it made quite an attractive margin all round the flower borders. Unfortunately it is not in leaf in winter, and for this reason is not so useful as some other plants. It has the merit of flowering well in summer; the blooms are of purple-blue shade.



THE GIANT YELLOW MULLEIN (*VERBASCUM OLYMPICUM*).

GUIDE TO FLOWER GROWING

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HARDY FLOWER GROWING AT A GLANCE THE AMATEUR'S COMPLETE GUIDE TO PLANTING

(Planting may be carried out from October until the end of March in favourable weather, but the times given are the best.)

Botanical Name	Common Name	When to Plant	Suitable Soil	Height	Colour	When in Bloom	Position	General Remarks
<i>Acanthus mollis</i>	Bear's Breech	Feb.—Mar.	Good, rather clayey	3 ft.	Purple and white	July—Sept.	Shade or sun	Handsome evergreen foliage
<i>Achillea Ptarmica</i>	Double Sneezewort	Nov.—Feb.	Ordinary	2½ ft.	White	June—Aug.	Sun	Excellent for cutting
<i>Aconitum Napellus</i>	Monkshood	Nov.	Ordinary	5 ft.	Dark blue	June—July	Half-shade or sun	Tall spikes of flower
<i>Adonis vernalis</i>	Ox-eye	Oct.—Nov.	Sandy.	½ to ½ ft.	Yellow	Mar.—April	Rockery or border	Give sheltered position
<i>Agrostemma coronaria</i>	Buttercup	Nov.	Ordinary	2 ft.	Magenta	June—July	Shrubby border	Good plant for shady position
<i>Akatsneria chilensis</i>	Peruvian Lily	Oct.—Nov.	Light, sandy	2 ft.	Orange and red	July	Waxm	Has tuberous roots
<i>Althaea rosea</i>	Hollyhock	Nov.—Feb.	Rich, ordinary	6 to 10 ft.	Various	July—Sept.	Back of sunny border	May also be treated as biennial
<i>Alysium saxatile</i>	Rock Madwort	Oct.—Nov.	Light, ordinary	1 ft.	Golden yellow	May	Front of border or rockery	Also useful spring bedding
<i>Anchusa italica</i>	Alkanet	Nov. or Feb.	Rich, ordinary	3 to 4 ft.	Bright blue	June—July	Semi-shade or sun	Dropmore variety is the best sort
<i>Anemone japonica</i>	Japanese Windflower	Feb.	Deep, rich	3 ft.	Rose also white	Sept.	Sun or shade	Good plant for town and suburban gardens
<i>Anemone Pulsatilla</i>	Pasque Flower	Oct.—Nov.	Chalky	½ ft.	Purple	May	Sun or half-shade	Grow on rocky or amongst hardy ferns
<i>Antennaria dioica tomentosa</i>	Silver Cat's Ear	Oct.—Nov.	Ordinary	½ ft.	Pink	June—July	Edging to border or for carpet bedding	Silvery foliage
<i>Anthericum Liliago</i>	St. Bernard's Lily	Nov.	Rich	2 ft.	White	June—July	Partial shade	Useful for cutting
<i>Asarababum majus</i>	Snapdragon	Mar.	Ordinary, well dug	3 to 4 ft.	Various	July—Sept.	Half-shade or sun	Best grown as biennial; only hardy in favourable positions

Botanical Name	Common Name	When to Plant	Suitable Soil	Height	Colour	When in Bloom	Position	General Remarks
<i>Aquilegia vulgaris</i>	Columbine	Oct.	Ordinary	2 to 3 ft.	Various	May— July	Half-shade	The long-spurred varieties may be grown from seeds sown in May Useful for edging
<i>Arabis albidia</i>	Rock or Wall Cress	Oct.	Ordinary	$\frac{1}{2}$ ft.	White	Mar.— May	Semi-shade or sun	Useful for cutting
<i>Arabis albidia flore pleno</i>	Double Rock Cress	Oct.	Ordinary	1 ft.	White	April— July	Semi-shade or sun	Grows wild on cliffs
<i>Armeria maritima</i>	Thrift	Oct.— Nov.	Ordinary	1 ft.	P.	June— July	Good edging plant	Useful carpet under trees
<i>Asperula odorata</i>	Scented Woodruff	Feb.— Mar.	Any soil	$\frac{3}{4}$ ft.	Wh.	May— June	Shade	Useful for cutting in autumn
<i>Aster</i>	Michaelmas Daisy	Nov. or Feb.	Ordinary	1 to 6 ft.	Mostly blue shades	July— Oct.	Sun or partial shade	New Chinese plant
<i>Astilbe Davidi</i>	David's Rock Cress	Nov.	Deep	$\frac{3}{4}$ to 4 ft.	Rose ed	Aug.— Sept.	Sun	Ideal rockery plants
<i>Aubrietia deltoidea</i>		Oct.	Sandy	$\frac{3}{4}$ to $\frac{1}{2}$ ft.	Violet, purple, blue, etc.	April— June	Sun-loving	Belongs to Wallflower family Favourite old garden flowers
<i>Barbarea vulgaris</i> , fl. pl.	Double yellow Cress	Nov.	Ordinary garden	1 $\frac{1}{2}$ ft.	Bright yellow	May— June	Sunny border	Has striking foliage
<i>Bellis perennis</i> , fl. pl.	Double Daisy	Oct.— Nov.	Moist garden	$\frac{3}{4}$ ft.	Red, pink white	April— June	Edging for borders or beds	Allied to Michaelmas Daisies
<i>Bocconia cordata</i>	Plume Poppy	Nov. or Feb.	Ordinary garden	5 to 7 ft.	Creamy buff	July— Aug.	Sun or partial shade	Benefits by little protection in winter
<i>Boltonia asteroides</i>	False Starwort	Nov. or Feb.	Ordinary garden	6 ft.	White	Sept.	Shrubby border	Useful for cutting
<i>Bravoa geminiflora</i>	Twin Flower	Oct.— Nov.	Sandy	1 to 1 $\frac{1}{2}$ ft.	Scarlet	June— July	Sunny border or rockery	Prostrate growing
<i>Bupthalmum salicifolium</i>	Ox-eye	Nov.— Feb.	Ordinary garden	1 $\frac{1}{2}$ to 2 ft.	Yellow	July— Aug.	Half-shady borders & wild g'd'n	
<i>Callirhoe involucrata</i>	Poppy Mallow	Feb.	Good garden	$\frac{3}{4}$ ft.	Violet, crimson	Aug.	Sunny border or rockery	

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Botanical Name	Common Name	When to Plant	Suitable Soil	Height	Colour	When in Bloom	Position	General Remarks
<i>Calceolaria</i>	Slipperwort	Feb.—Mar.	Moist	1 ft.	Golden yellow	June—July	Half-shade	Useful rockery plant
<i>Caltha palustris</i> , fl. pl.	Double Marsh Marigold	Oct.—Nov.	Very moist	1 to 1½ ft.	Golden yellow	April—May	Bog or waterside	Buttercup family
<i>Camassia</i>	Quamash	Oct.	Deep, light rich	1 to 2½ ft.	Pale blue	June—July	Sunny border	Useful for cutting
<i>Campanula aculeata</i>	Bellflower	March	Well-drained, sandy	1 ft.	Blue	May—June	Sunny rockery	Pretty in masses
<i>Campanula carpatica</i>	Bellflower	March	Well-drained, sandy	½ to ¾ ft.	Blue, white centre	Aug.	Sunny rockery	Starlike flowers
<i>Campanula garganica</i>								
<i>Campanula glomerata</i>	Clustered Bellflower	Nov. or Feb.	Well-drained, sandy	1½ ft.	Purple	May—June	Shade or sun	Terminal heads of flowers
<i>Campanula lactiflora</i>	Bellflower	Nov. or Feb.	Rich	4 to 6 ft.	White, tinted blue	June—Aug.	Best in partial shade	Tall, striking plant
<i>Campanula persicifolia</i>	Peach-leaved Bellflower	Oct.—Nov.	Rich	2 to 4 ft.	Blue, white	May—June	Shade or sun	Many pretty varieties
<i>Campanula portenschlagiana</i>	Bellflower	March	Sandy	½ ft.	Blue, purple	May—June	Sunny rockery	One of the best tufted kinds
<i>Campanula rapunculoides</i>	Bellflower	Nov.—Feb.	Ordinary garden	2 to 4 ft.	Blue, purple	Aug.	Shade or sun	Useful in wild garden
<i>Cardamine pratensis</i> , fl. pl.	Double Cuckoo Flower	Oct.—Nov.	Moist, ordinary	1 ft.	Violet	June—July	Bog or waterside	Double variety of our wild Cuckoo Flower
<i>Centaurea montana</i>	Blue Bottle	Nov.	Deeply dug, ordinary	2 ft.	Violet	July—Sept.	Useful for edging	Useful for cutting
<i>Cerastium tomentosum</i>	Snow in Summer	Oct.	Ordinary garden	½ ft.	White	June—July	Sunny border or back of rockery	Snow-white foliage
<i>Chrysanthemum maximum</i>	Shasta Daisy	Nov.	Deeply dug, rich	2½ to 3 ft.	White	June—Sept.	Useful for edging	Splendid for cutting
<i>Chrysanthemum uliginosum</i>	Great Ox-eye Daisy	Nov.	Deeply dug, rich	5 to 6 ft.	White	Sept.—Oct.	Sun or half-shade	Pretty in wild garden
<i>Cimicifuga racemosa</i>	Black Snake Root	Nov. or Feb.	Moist, ordinary	3 to 4 ft.	White	July—Aug.	Sun or shade	Elegant foliage
<i>Cimicifuga simplex</i>	Bugbane	Nov. or Feb.	Moist, ordinary	3 ft.	Snow-white	Sept.	Sun or shade	Flowers unpleasant odour

Botanical Name	Common Name	When to Plant	Suitable Soil	Height	Colour	When in Bloom	Position	General Remarks
<i>Commelina caelestis</i>	Spiderwort	Mar.	Light, sandy	1½ ft.	Blue	July	Warm, sunny	Also white variety
<i>Convallaria majalis</i>	Lily of the Valley	Sept.	Rich loam and leafmould	½ ft.	White	May	Shade and half-shade	Very fragrant
<i>Corceps grandiflora</i>	Gol'on haugustite	Oct.—Nov.	Ordinary	1½ to 3 ft.	Orange yellow	June—July	Popular border plant	Good for cutting
<i>Corydalis thalictrifolia</i>	Chinese Fumitory	Mar.	Light, sandy	½ ft.	Yellow	May—Aug.	Sunny rocky	Not perfectly hardy
<i>Crambe orientalis</i>	Flowering Kale	Nov. or Feb.	Sandy	5 ft.	White	June—July	Shady border or sun	Gypsophila-like flowers
<i>Delphinium cardinale</i>	Scarlet Larkspur	Mar.	Deep	3 ft.	Bright scarlet	July—Aug.	Sunny border	Very distinct
<i>Delphinium cashmerianum</i>	Blue Larkspur	Mar.	Deep, rich	1 to 1½ ft.	Pale blue	July—Aug.	Sunny border	Native of Kashmir
<i>Delphinium formosum</i>	Blue Larkspur	Mar.	Deep, rich	3 to 4 ft.	Blue	June—July	Sunny border	Comes true from seeds
<i>Delphinium grandiflorum</i>	Blue Larkspur	Mar.	Deep, rich	1 to 2 ft.	Dark blue	June—Aug.	Sunny border	The best dwarf Larkspur
<i>Delphinium Hybrids</i>	Florists' Larkspur	Mar.	Deep, rich	4 to 6 ft.	Shades of blue, occasionally white	Summer	Herbaceous border	Should be in every garden
<i>Delphinium nudicaule</i>	Orange-red Larkspur	Mar.	Sandy	1½ ft.	Orange-red	June—July	Sunny border	A charming flower
<i>Delphinium Zali</i>	Sulphur Larkspur	Mar.	Sandy	2 to 3 ft.	Pale sulphur	July—Aug.	Sunny border	Native of Syria
<i>Dianthus alpinus</i>	The Alpine Pink	Mar.	Sandy, mix in old mortar	½ to 1 ft.	Rose, spotted crimson	June—July	Sunny rocky	There is a rare white variety
<i>Dianthus czeisii</i>	Cheeddar Pink	Mar.	Sandy, mix in old mortar	½ ft.	Delicate rose	June—July	Sunny rocky	Very fragrant
<i>Dianthus deltoides</i>	Maiden Pink	Mar.	Sandy, mix in old mortar	½ to 1 ft.	Rose, dark centre	June—July	Sunny rocky	Plant covered with flowers
<i>Dianthus neglectus</i>	Glacier Pink	Mar.	Sandy, mix in old mortar	½ ft.	Pink or bright rose	June—July	Sunny rocky	Prettily serrated petals

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Botanical Name	Common Name	When to Plant	Suitable Soil	Height	Colour	When in Bloom	Position	General Remarks
<i>Dianthus plumarius</i>	Garden Pink	Mar.	Sandy, mix in old mortar	1 ft.	White, tinted pink	June—July	Border or sunny rockery	Parent of Garden Pink
<i>Dianthus superbus</i>	Fringed Pink	Mar.	Sandy, mix in old mortar	1 to 1 ft.	Rose coloured	June—Aug.	Sunny rockery	Delicious fragrance
<i>Dicentra spectabilis</i>	Bleeding Heart	Oct.—Nov.	Rich, sandy	1 to 2 ft.	Rose pink	May—June	Shady border	Also known as <i>Dialytia</i>
<i>Dietamus Fraxinella</i>	Burning Bush	Nov.—Feb.	Ordinary deep	3 to 4 ft.	Purple	July—Aug.	Shade or sun	Interesting border plant
<i>Dodecatheon media</i>	American Cowslip	Feb.	Light soil and leaf-mould	1 ft.	Rose purple, white, lilac	April—June	Sun or shade	Not too hot a position
<i>Doronicum austriacum</i>	Leopard's Bane	Nov.	Ordinary	1 to 1 ft.	Yellow	Mar.—April	Sun or shade	Marguerite-like flowers
<i>Doronicum Harpur Crewe</i>	Leopard's Bane	Nov.	Ordinary	2 to 3 ft.	Yellow	April—June	Sun or shade	Useful in wild garden
<i>Echinacea purpurea</i>	Hedgehog Cone Flower	Nov. or Feb.	Rich, deep	3 to 4 ft.	Rose purple	Aug.—Sept.	Sunny border	Resembles <i>Rudbeckia</i>
<i>Echinops Ritro</i>	Globe Thistle	Nov. or Feb.	Ordinary, deep	3 ft.	Steel blue	July—Aug.	Sun or shade	Useful dried for winter decoration
<i>Epilobium angustifolium</i>	Willow Herb	Nov.	Ordinary	4 to 5 ft.	Crimson	July	Good in shade	Plant in shrubby borders
<i>Eremurus Bungei</i>	Bunge's Asphodel	Sept.—Oct.	Well-drained, warm, rich	4 to 5 ft.	Citron yellow	June—July	Sheltered, sun or half-shade	Protect roots in winter
<i>Eremurus himalaicus</i>	Himalayan Asphodel	Sept.—Oct.	Well-drained, warm, rich	6 to 8 ft.	White	June	Sheltered, sun or half-shade	Protect roots in winter
<i>Eremurus robustus</i>	Giant Asphodel	Sept.—Oct.	Well-drained, warm, rich	4 to 6 ft.	Peach pink	June—July	Sheltered, sun or half-shade	Protect roots in winter
<i>Erdgeron multi-radiatus</i>	Fleabane	Nov.	Ordinary, good	1 to 1 ft.	Violet	June—Aug.	Sun or half-shade	Pretty rockery plant
<i>Eryngium planum</i>	Sea Holly	Nov. or Feb.	Ordinary, good	2 to 3 ft.	Blue	Aug.—Sept.	Sun or half-shade	Valuable for house decoration in winter
<i>Eupatorium ageratoides</i>	Hemp Agrimony	Nov. or Feb.	Ordinary, good	3 to 4 ft.	White	Aug.—Sept.	Sunny border	Native of North America

Botanical Name	Common Name	When to Plant	Suitable Soil	Height	Colour	When in Bloom	Position	General Remarks
<i>Eupatorium purpureum</i>	Trumpet Weed	Nov. or Feb.	Ordinary good	5 ft.	Purple-brown	Sept.	Sunny border	Good border plant
<i>Euphorbia epithymoides</i>	Spurge	Nov.	Good, deep	1½ to 2 ft.	Chrome yellow	June—July	Half-shade	Rosy bronze in autumn
<i>Funkia Fortunei</i>		Nov.	Deep, rich	1½ ft.	Lilac	June	Half-shade	The tallest in growth
<i>Funkia lancifolia</i>		Nov.	Deep, rich	¾ ft.	Lilac	Aug.	Half-shade	Narrow green leaves
<i>Funkia tardiflora</i>		Feb.	Deep, rich	¾ ft.	Lilac	Oct.	Half-shade	A splendid late kind.
<i>Funkia undulata</i>	Plantain Lilies	Nov.	Deep, rich	1 ft.	Lilac	July—Aug.	Half-shade	Wavy margins to leaves
<i>Funkia undulata variegata</i>		Nov.	Deep, rich	1 ft.	Lilac	July—Aug.	Half-shade	Pretty variegated foliage
<i>Galega Hartlandii</i>	Hartland's Goat's Rue	Nov. or Feb.	Good, rich	4 to 5 ft.	Lavender, blue or lilac	July—Aug.	Sunny border	An Irish variety
<i>Galega officinalis</i>	Goat's Rue	Nov. or Feb.	Good, rich	3 to 5 ft.	Lilac, white	June—Aug.	Sunny border	Elegant pinnate foliage
<i>Gaura Lindheimeri</i>	Virginian Loosestrife	Nov. or Feb.	Ordinary	3 ft.	White, tinted rose	July—Sept.	Sun or half-shade	May also be treated as biennial
<i>Gentiana acaulis</i>	Gentianella	Mar.	Moist	½ to ¾ ft.	Deep blue	April—May	Rockery, or as an edging to border	The most beautiful of all Gentians
<i>Gentiana septemfida</i>	Crested Gentian	Mar.	Moist sandy peat	½ to 1 ft.	Azure blue, white inside flower	July	Sunny rockery	Also known as G. Gelida
<i>Gentiana verna</i>	Spring Gentian	Mar.	Moist, sandy	½ ft.	Blue	April—May	Sunny rockery	Place pieces of stone amongst the plants to prevent soil becoming dry
<i>Geranium armenum</i>	Armenian Crane's Bill	Nov.	Ordinary, well-drained	2 to 3 ft.	Purple crimson	July	Sunny border & half-shade	Useful in wild garden
<i>Geranium Endressi</i>	Crane's Bill	Nov.	Ordinary, well-drained	1 ft.	Rose	July	Sunny border & half-shade	Useful in wild garden
<i>Geranium ibericum</i>	Crane's Bill	Nov.	Ordinary, well-drained	1½ to 2 ft.	Blue	July—Aug.	Sunny border & half-shade	Useful in wild garden

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Botanical Name	Common Name	When to Plant	Soil	Height	Colour	When in Bloom	Position	General Remarks
<i>Geranium pratense</i> , fl. pl.	Double Crane's Bill	Nov.	Ordinary, well-drained	2 ft.	Blue, white	June—July	Sunny border & half-shade	Useful in wild garden
<i>Gerbera Jamesoni</i>	Barberson	Mar.	Well-drained loam & peat	2 to 3 ft.	Orange scarlet	July—Sept.	Sunny south border	Protect in winter
<i>Geum chiloense</i> fl. pl.	Double Avena.	Nov. or Feb.	Well-drained ordinary	1½ to 2 ft.	Scarlet	June—Aug.	Sunny border	Also known as <i>G. oocineas</i> fl. pl.
<i>Geum chiloense</i> grandiflorum	Large-flowered Avena	Nov. or Feb.	Well-drained ordinary	1½ to 2 ft.	Scarlet	June—Aug.	Sunny border	Dazzling colour
<i>Geum Heldreichii</i>	Heldreich's Avena	Nov. or Feb.	Well-drained ordinary	1 ft.	Orange red	June—Aug.	Sunny border	A beautiful garden hybrid
<i>Geum montanum</i>	Mountain Avena	Nov.	Moist, ordinary	1½ to 2 ft.	Bright yellow	May—June	Sunny rocky	Compact habit
<i>Gillenia trifoliata</i>	False Meadow Sweet	Feb.	Moist peat and loam	2 ft.	White-red outside	June—July	Sunny rocky	A Spiraea-like plant
<i>Gypsophila paniculata</i>	Gauze Flower or Chalk Plant	Nov. or Feb.	Well-drained, chalky	3 ft.	White	July—Aug.	Partial shade	Prized for cutting
<i>Gypsophila paniculata</i> , fl. pl.	Double Gauze Flower	Nov. or Feb.	Well-drained, chalky	3 ft.	White	July—Aug.	Sun	Prized for cutting
<i>Gaillardia aristata</i>	Perennial Gaillardia	Spring	Light, sandy	1½ ft.	Orange yellow & brown	June—Aug.	Warm, dry position in winter	Splendid for cutting
<i>Gaillardia hybrida</i>	Hybrid Gaillardia	Spring	Light, sandy	2 ft.	Varied range of colours	June—Aug.	Warm, dry position in winter	Especially free flowering during dry summer
<i>Helianthemum autumnale</i>	Sneezeweed or Helen Flower	Nov. or Feb.	Deep, rich	5 to 6 ft.	Yellow	Aug.—Sept.	Sun or wild garden	One of best autumn flowers for cutting
<i>Helianthemum pumilum</i>	Dwarf Sneezeweed	Nov. or Feb.	Deep, rich	2 ft.	Pure yellow	June—July	Sun or wild garden	One of best flowers for cutting
<i>Helianthemum striatum</i>	Striated Sneezeweed	Nov. or Feb.	Deep, rich	5 to 6 ft.	Crimson and gold	Aug.—Sept.	Sun or wild garden	One of best autumn flowers for cutting
<i>Helianthus multiflorus</i>	Sunflower	Nov. or Feb.	Deep, rich	5 to 6 ft.	Rich yellow	Aug.—Sept.	Sun or wild garden	The variety maximus has larger flowers
<i>Helianthus multiflorus</i> Soleil d'Or	Double Sunflower	Nov. or Feb.	Deep, rich	5 ft.	Yellow	Aug.—Sept.	Sunny border	Desirable for cutting
<i>Helianthus rigidus</i>	Prairie Sunflower	Nov.—Feb.	Deep, rich	5 to 6 ft.	Rich golden yellow	Sept.—Oct.	Sun or half shade	Desirable for cutting

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<i>Helleborus niger</i>	Christmas Rose	July	Light, rich soil	1 to 2 ft.	White	Dec.—Mar.	Partial shade	Protect flowers with hand-lights or cloches
<i>Helleborus orientalis</i>	Lenten Rose	July	Light, rich soil	1 to 1½ ft.	White, purple, rose, crimson, & spotted yellow	Jan.—April	Partial shade	Many pretty sorts
<i>Hemerocallis aurantiaca</i>	Day Lily	Nov. or Feb.	Deep, rich, moist	2 ft.	Orange	July—Sept.	Partially shaded border	Several beautiful sorts have been introduced during recent years. Useful plants for suburban gardens
<i>Hemerocallis flava</i>	Yellow Day Lily	Nov. or Feb.	Deep, rich, moist	2½ ft.	Yellow	May—June	Partially shaded border	
<i>Hemerocallis fulva</i>	Brown Day Lily	Nov. or Feb.	Deep, rich, moist	2½ ft.	Bronzy yellow	June—Aug.	Partially shaded border	
<i>Hemerocallis</i> Kwanso, fl. pl.	Double Day Lily	Nov. or Feb.	Deep, rich, moist	3 ft.	Bronzy orange	June—Aug.	Partially shaded border	
<i>Hemerocallis middendorffiana</i>	Bronze Day Lily	Nov. or Feb.	Deep, rich, moist	1½ to 2 ft.	Rich orange yellow	June—July	Partially shaded border	
<i>Hieracium giganteum</i>	Giant Parmip	Nov.	Ordinary	8 to 10 ft.	White	Aug.	Wild garden, sun or half shade	
<i>Hieracium mantegazzianum</i>	Cow Parsnip	Nov.	Ordinary	6 ft.	White	Aug.	Wild garden, sun or half shade	Noble-looking plant
<i>Hieracium matronalis</i>	Rocket	Nov.	Rich, moist	2 ft.	Lilac, white	June—July	Moist, half-shade	Better flowers than <i>H. giganteum</i>
<i>Heuchera</i>	Hybrid Alum Root	Oct.—Nov.	Ordinary garden	2 to 3 ft.	Pink	May—June	Sunny border or rocky	Double and single varieties
<i>Heuchera</i>	Scarlet Alum Root	Oct.—Nov.	Ordinary garden	1½ ft.	Coral	May—June	Sunny border or rocky	Tall, slender flower spikes
<i>Hieracium sanguinea</i>	Hawkweed	Nov.	Ordinary	1 to 1½ ft.	Scarlet	June—Aug.	Almost any position	And numerous varieties
<i>Hieracium aurantiacum</i>	Candytuft	Oct.—Nov.	Light, sandy	1 ft.	Lilac, white	Feb.—May	Sheltered rocky	Seeds and spreads freely
<i>Iberis gibraltarica</i>	Perennial Candytuft	Oct.—Nov.	Light, rich	1 ft.	White	May—June	Sun or half-shade	Evergreen
<i>Iberis sempervirens</i>								There are several varieties

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<i>Incarvillea Delavayi</i>	Trumpet Flower	Oct.	Light, rich	2½ ft.	Rose pink	June—July	Warm south border	Has tuberous roots
<i>Inula glandulosa</i>	Flea Bane	Nov.	Ordinary	2 ft.	Orange yellow	June—Aug.	Sun	Useful in wild garden
<i>Inula royleana</i>	Royle's Flea Bane	Nov.	Ordinary	2 ft.	Rich	July—Aug.	Sun	Large, effective flowers
<i>Iris alata</i>	Scorpion Iris	Aug.	Light, sandy	½ to ¾ ft.	Orange yellow blotch	Dec.—Feb.	Warm, sunny border	A bulbous species
<i>Iris Chamæiris</i>	Early Blue	Aug.—Sept.	Well-drained	½ to ¾ ft.	Deep blue, white, &c.	April—May	Sunny rocky or half-shade	Numerous varieties
<i>Iris germanica</i>	German Flag	Aug.—Sept.	Moist, rich, or ordinary	2 to 2½ ft.	Blue, &c.	May	Sunny b'd'r or half-shade	Many beautiful sorts
<i>Iris orientalis</i>	Beardless Flag	Aug.—Sept.	Moist, rich	4 ft.	White and yellow	June—July	Border or waterside	The Golden-banded Iris
<i>Iris pallida</i>	Great Purple Flag	Aug.—Sept.	Moist, ordinary	2 to 3½ ft.	Pale mauve	June	Sunny b'd'r or half-shade	Very showy
<i>Iris pumila</i>	Dwarf Flag	Aug.—Sept.	Well-drained	½ to ¾ ft.	Deep violet, &c.	April—May	Sunny rocky	Many pretty varieties
<i>Iris sibirica</i>	Siberian Flag	July	Rich, damp	2 to 3 ft.	Blue	May	Sunny lake side	Tall, slender growths
<i>Iris susiana</i>	Mourning Iris	Oct.—Nov.	Light, warm	1 to 1½ ft.	Purplish brown & grey	May	Sunny nooks	Immense flowers
<i>Iris unguicularis</i>	Algerian Iris	Sept.	Well-drained	1 to 1½ ft.	Lavender blue	Nov.—Mar.	Warm south border	Also known as <i>I. stylis</i>
<i>Iris versicolor</i>	North American Iris	Sept.	Moist	1 to 2 ft.	Claret	June—Aug.	Waterside	There are several varieties
<i>Iris laevigata</i>	Japanese Iris	Oct. or Mar.	Moist	2½ to 3 ft.	Purple	July—Aug.	Box garden, & lakeside	Syn. <i>I. Kaempferi</i>
<i>Iris glauca</i>	Dyer's Wood	Nov.	Ordinary	3½ to 4 ft.	Yellow	July—Aug.	Shrubby border	Large racemes of flowers
<i>Juncus perennis</i>	Sheep's Scabious	Nov.—Mar.	Light	1 ft.	Blue	June—Aug.	Rockery	Belongs to Bell-flower family
<i>Kniphofia albidos</i>	Torch Lily or Red Hot Poker	Mar.	Rich, well-drained	4 to 5 ft.	Orange yellow	Aug.—Oct.	Sunny border	The best-known species
<i>Kniphofia grandis</i>	Red Hot Poker	Mar.	Rich, well-drained	5 to 6 ft.	Orange scarlet	Aug.—Sept.	Sunny border	Sometimes called nobilis

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<i>Kniphofia Pfitzeri</i>	Pfitzer's Torch Lily	Mar.	Rich, well-drained	3 to 4 ft.	Crimson	Sept.—Oct.	Sunny border	A first-class hybrid
<i>Kniphofia rufa</i>	Small-flowered Torch Lily	Mar.	Rich, well-drained	4 ft.	Red and yellow	July—Oct.	Sunny border	The best small-flowered species
<i>Kniphofia Saundersii</i>	Saunders' Torch Lily	Mar.	Rich, well-drained	4 to 6 ft.	Orange, shaded deeper	Aug.—Oct.	Sunny border	A very free-flowering sort.
<i>Kniphofia hybrida</i>	Hybrid Torch Lily	Mar.	Rich, well-drained	4 to 6 ft.	Orange, yellow, red, &c.	Aug.—Oct.	Sunny border	Many beautiful named varieties
<i>Lactuca Bourgal</i>	Flowering Lettuce	Nov.—Feb.	Ordinary	4 to 5 ft.	Pale blue	July—Aug.	Sun or half-shade	Pretty in wild garden
<i>Lactuca Plumieri</i>	Blue Thistle	Nov.—Feb.	Ordinary	6 to 7 ft.	Bright blue	Aug.—Sept.	Sun or half-shade	Pretty in wild garden
<i>Lathyrus grandiflorus</i>	Perennial Pea	Nov.	Deeply dug ordinary	6 ft.	Crimson	June—July	Sunny border	Flowers in pairs
<i>Lathyrus latifolius</i>	Everlasting Pea	Nov.	Deeply dug ordinary	6 ft.	Bright rose, white	July—Aug.	Sun, or half-shade	Useful for screens
<i>Lathyrus latifolius</i> Wh. Pear.	White Everlasting Pea	Nov.	Deeply dug ordinary	6 ft.	White	July—Aug.	Sun or half-shade	Many flowers on a stalk
<i>Lathyrus rotundifolius</i>	Cherry-coloured Perennial Pea	Nov.	Deeply dug ordinary	4 to 5 ft.	Brick red	June—July	Sunny border	Distinct and pretty
<i>Leucopodium alpinum</i>	Edelweiss	Nov.—Feb.	Sandy	½ ft.	Yellow	June—July	Sunny border	Hoary-leaved Alpine
<i>Liatis graminifolia dubia</i>	Button Snake-root	Nov.	Well-drained rich	4 ft.	Rose purple	July—Sept.	Sunny border	Pretty water-side plant
<i>Liatis pycnostachya</i>	Kansas Grey Feather Snake-root	Nov.	Well-drained rich	2 to 4 ft.	Deep purple	July—Sept.	Sunny border	Pretty water-side plant
<i>Liatis scariosa</i>	Snake-root	Nov.	Well-drained rich	2 to 3 ft.	Dark purple	July—Sept.	Sunny border	Variety magnifica is richer in colour
<i>Liatis spicata</i>	Devil's Bit	Nov.	Well-drained rich	2 to 3 ft.	Rose purple	July—Sept.	Sun or shade	Spikes are crowded with flowers
<i>Libertia formosa</i>	New Zealand Satin Flower	Mar.	Well-drained peaty	1 to 2 ft.	White	May	Warm sunny rocky or border	Member of the Iris family

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Botanical Name	Common Name	When to Plant	Soilable Soil	Height	Colour	When in Bloom	Position	General Remarks
<i>Libertia grandiflora</i>	New Zealand Satin Flower	Mar.	Well-drained peaty	2 to 3 ft.	White	June	Warm sunny rocky or border	Member of the Iris family
<i>Libertia isoides</i>	New Zealand Satin Flower	Mar.	Well-drained peaty	2 to 3 ft.	White	June	Warm sunny rocky or border	Member of the Iris family
<i>Linum arboreum</i>	Perennial Flax	Sept.—Oct.	Ordinary, well-drained	1 ft.	Bright yellow	June—July	Dry sunny position	Evergreen bush
<i>Linum perenne</i>	Perennial Flax	Nov.	Ordinary well-drained	1½ to 2 ft.	Blue, white	June—Aug.	Sunny border	Readily raised from seeds
<i>Lithospermum prostratum</i>	Gromwell	Oct.—Nov.	Ordinary, well-drained	1 to 1 ft.	Gentian blue	May—Aug.	Rockery or dry, shady border	Evergreen trailer
<i>Lobelia cardinalis</i>	Cardinal Flower	Mar.	Ordinary moist	2 to 3 ft.	Carmine scarlet	July—Sept.	Partial shade	Protect with ashes in winter
<i>Lobelia fulgens</i>	Dragon-fly or Fire-fly	Mar.	Ordinary moist	2 to 3 ft.	Scarlet	July—Sept.	Partial shade	Brassy red foliage
<i>Lobelia siphilitica</i>	Dragon-fly or Fire-fly	Mar.	Ordinary moist	2 to 3 ft.	Blue, white, rose, purple, &c.	July—Sept.	Partial shade or sun	Quite hardy
<i>Lupinus arboreus</i>	Tree Lupin	Mar.	Well-drained, ordinary	3 to 4 ft.	Yellow	June—Sept.	Warm, sunny position	Each attains the size of a large bush in sheltered positions
<i>Lupinus arboreus</i>	White Tree Lupin	Mar.	Well-drained, ordinary	3 to 4 ft.	White	June—Sept.	Warm, sunny position	A favourite in town and suburban gardens
<i>Lupinus polyphylus</i>	Blue Lupin	Oct. or Mar.	Ordinary	3 to 4 ft.	Blue, white, purple, &c.	May—June	Sunny border	A showy border plant
<i>Lycnis</i>	Jerusalem Cross	Nov.—Feb.	Deep, rich	3 ft.	Bright scarlet	July—Aug.	Sunny border	Wild garden favourite
<i>Lycnis chalcidonica</i>	Agrostemma	Nov.—Feb.	Ordinary	2 ft.	Rosy crimson, white &c.	July—Aug.	Sunny border	
<i>Lycnis coronaria</i>	Agrostemma	Nov.—Feb.	Ordinary	2 ft.	Rosy crimson, white &c.	July—Aug.	Sunny border	
<i>Lycnis dioica</i>	Double Red Campion	Oct.—Nov.	Ordinary	1 to 2 ft.	Red	May—Aug.	Sun, or partial shade	Useful town garden plant
<i>Lycnis floer.</i>	Double Ragged Robin	Oct.—Nov.	Ordinary	1½ ft.	White	June—July	Sun, or partial shade	Useful town garden plant

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<i>Lychnis haageana</i>	Haage's Campion	Oct.—Nov.	Ordinary	1 to 1 ft.	Crimson, white, do.	June—Aug.	Partial shade	A good plant
<i>Lychnis Viscaria</i>	German Catchfly	Oct.—Nov.	Ordinary	1 to 1½ ft.	Rose, white	June—Aug.	Sun, or partial shade	Does well in dry soils
<i>Lychnis alba</i>	Snowy Loosetrife	Nov.—Feb.	Ordinary, moist	2 to 3 ft.	White	July—Aug.	Partially shaded border	Moisture-loving plants in summer
<i>Lychnis viscaria</i>	Creeper Jenny	Oct.—Nov.	Ordinary, moist	1 ft.	Yellow	June—Aug.	Moist, shady corners, especially in rock garden	
<i>Lychnis punctata</i>	Golden Loosetrife	Nov.—Feb.	Ordinary, moist	3 ft.	Yellow	July—Aug.	Partially shaded border	
<i>Lythrum Salicaria</i>	Purple Loosetrife	Nov.—Feb.	Ordinary, moist	2 to 3 ft.	Reddish purple	July—Aug.	Border and roadside	A native plant
<i>Malva moschata</i>	Musk Mallow	Nov.—Feb.	Good, ordinary	1½ to 2½ ft.	Rose pink	June—Aug.	Sunny border	Also a white variety
<i>Matricaria inodora</i> fl. pl.	Double May-weed	Nov.	Good, ordinary	2 ft.	White	June—Sept.	Sunny border	Useful for cutting
<i>Meconopsis cambrica</i> fl. pl.	Double Welsh Poppy	Mar.	Rich, sandy	1 ft.	Orange yellow	June—Aug.	Shade	Easily raised from seeds
<i>Melissa officinalis</i>	Balm	Nov.	Ordinary	2 to 3 ft.	Pale yellow	June—Sept.	Sun or shade	A well-known fragrant herb
<i>Mentha rotundifolia</i> variegata	Variegated Apple Mint	Nov.	Ordinary	1 to 1 ft.	Whitish	Aug.	Dry bank or edging for border	Green and light yellow variegation
<i>Mertensia paniculata</i>	Smooth Lungwort	Nov.—Feb.	Loam and peat	1½ to 2 ft.	Violet blue	July to Sept.	Partial shade	Flowers in terminal clusters
<i>Mertensia sibirica</i>	Smooth Virginian	Nov.—Feb.	Loam and peat	1½ to 2 ft.	Light blue	May—July	Partial shade	Also white variety
<i>Mertensia virginica</i>	Cowslip Common Musk	Nov.—Feb.	Loam and peat	1 to 1½ ft.	Purplish blue	May—June	Partial shade	Also known as <i>M. pulmonarioides</i>
<i>Mimulus moschatatus</i>	Common Musk	Mar.	Damp, rich	1 to 1 ft.	Yellow	June—Aug.	Moist, shady spots	Fragrant foliage
<i>Monarda didyma</i>	Bergamot	Nov.—Feb.	Moist border	2 to 3 ft.	Scarlet	July—Aug.	Sunny border	Does well in small gardens
<i>Monarda fistulosa</i>	Wild Bergamot	Nov.—Feb.	Moist border	4 ft.	Purple	July—Aug.	Sunny border	A robust plant

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<i>Nepeta Glechoma</i>	Variegated Ground Ivy	Nov. — Feb.	Moist, ordinary	1 ft.	Blue	April — June	Shady rocky	Plant amongst stones
<i>Eurothra fruticosa</i>	Sundrops	Mar.	Sandy loam	1 to 3 ft.	Yellow	June — Aug.	Sunny border	Also varieties Youngi and veauata
<i>Eurothra missouriensis</i>	Evening Primrose	Mar.	Warm, light	1 ft.	Yellow	June — Aug.	Rockery, sun	Also named macrocarpa
<i>Eurothra speciosa</i>	White Evening Primrose	Mar.	Well-drained, rich	1 to 1 1/2 ft.	White, tinted rose	June — Sept.	Sunny border	Fragrant
<i>Eurothra taraxacifolia</i>	Chilian Evening Primrose	Mar.	Well-drained, rich	1 ft.	White, tinted rose	June — Aug.	Rockery, sun	A low-trailing species
<i>Omphalodes verna</i>	Creeping Forget-me-not	Mar.	Moist, ordinary	1 ft.	Blue, wh. centre	May	Partial shade	There is a white variety
<i>Ononis rotundifolia</i>	Rest Harrow	Nov. or Feb.	Ordinary	1 1/2 ft.	Rose and white	May — July	Shrubby border	Pea-shaped flowers
<i>Ononis spinosa</i>	Prickly Rest Harrow	Nov. or Feb.	Ordinary	1 1/2 ft.	Rose	June — July	Shrubby border	Rather prostrate, shrubby plant
<i>Ophiopogon spicatus</i>	Snake's Beard	Mar.	Ordinary	1 ft.	Lilac	July — Aug.	Partial shade	Evergreen foliage
<i>Ostrowakia magnifica</i>	Asiatic Bell-flower	Oct.	Deep, well-drained, rich, sandy	3 to 5 ft.	White, suffused mauve	S. pt. June — July	Warm, sunny corner	Must be transplanted carefully, as plant has long fleshy roots
<i>Paeonia officinalis</i>	Common Paeony	Oct.	Deeply dug garden	2 to 3 ft.	White, pink rose, red, crimson	May — July	Border facing west or south-west	Many beautiful double varieties
<i>Paeonia tenuifolia</i>	Cut-leaved Paeony	Oct.	Rich, ordinary	1 1/2 to 2 ft.	Crimson	May — June	"	Fennel-like foliage
<i>Papaver orientale</i>	Oriental Poppy	Sept.	Rich, ordinary	3 ft.	Scarlet, etc.	June	Sunny border or partial shade	Many beautiful varieties
<i>Pentstemon barbatus</i>	Pentstemon	Oct. — Feb.	Rich, ordinary	3 ft.	Carmine scarlet	June — Aug.	Sun or partial shade	Torreyi an improved variety
<i>Pentstemon glaber</i>	Smooth Snake's Head	Mar.	Well-drained	1 1/2 ft.	Blue, light and dark	May — July	Rockery	Showy
<i>Phlox fruticosa</i>	Jerusalem Sage	Nov. — Feb.	Ordinary	3 ft.	Golden yellow	June — Aug.	Shrubby border	Forms a bush
<i>Phlox amara</i>	Alpine Phlox	Oct.	Ordinary, well-drained	1 ft.	Rose	April — May	Sunny border or rocky	Flowers during mild winter

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<i>Phlox decussata</i>	Florist's Border Phlox	Nov. or Feb.	Deeply dug, rich	3 to 5 ft.	Many colours	Aug.—Sept.	Sun or partial shade	Numerous named varieties
<i>Phlox divaricata</i>	Canadian Phlox	Oct.	Ordinary, well-drained	1 to 1½ ft.	Lilac, mauve	May—June	Sunny border or rocky	Vari. canadensis and Lapland
<i>Phlox ovata</i>	Evergreen Phlox	Oct.	Ordinary, well-drained	½ to 1 ft.	Deep rose	May—June	Sunny rocky border or rocky	Produces masses of flowers
<i>Phlox paniculata</i>	Old Garden Phlox	Nov. or Feb.	Deep, rich	4 to 5 ft.	Lilac, white	Aug.—Sept.	Sun or partial shade	One of the original species
<i>Phlox subulata</i>	American Moss Pink	Oct.	Ordinary, well-drained	½ ft.	Rose, lilac, white, mauve, &c.	April—June	Sunny rocky border or rocky	Numerous named varieties for border or rocky
<i>Phlox suffruticosa</i>	Early-flowering Border Phlox	Nov. or Feb.	Deep, rich	2 to 2½ ft.	Various	June—July	Partial shade or moist, sunny border	Many named varieties
<i>Phygelius capensis</i>	Cape Figwort	Nov.—Feb.	Sandy	2½ to 3 ft.	Bright scarlet	Aug.—Oct.	Sunny, well-drained border	Not suitable for cold districts
<i>Physalis Alkekengi</i>	Winter Cherry	Nov.—Feb.	Ordinary garden	1½ ft.	White	Fruits attractive, Sept.—Nov.	Sun or partial shade	Orange-coloured calyx in autumn
<i>Physalis</i>	Franchet's Winter Cherry	Nov.—Feb.	Ordinary garden	2 to 3 ft.	White	Sept.—Nov.	Sun or partial shade	Much larger calyx than P. Alkekengi
<i>Physostegia virginiana</i>	False Dragon's Head	Nov.—Feb.	Ordinary garden	3 to 5 ft.	Rosy pink	July—Sept.	Sunny border	There is a white variety
<i>Phytolacca decandra</i>	Virginian Poke-weed	Nov.	Ordinary garden	5 to 6 ft.	White	June—July	Shrubby border or wild garden	Purple berries in autumn
<i>Platycodon grandiflorum</i>	Balloon Flower	Mar.	Light, sandy	1 to 1½ ft.	Blue	July—Aug.	Rockery or well-drained sunny border	Marbled deep blue variety, album white
<i>Polemonium caeruleum</i>	Jacob's Ladder	Nov.—Feb.	Ordinary, moist	1½ to 2 ft.	Blue, golden anthers	June—July	Sun or partial shade	White variety also

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Botanical Name	Common Name	When to Plant	Suitable Soil	Height	Colour	When in Bloom	Position	General Remarks
<i>Polygonatum multiflorum</i> <i>Polygonatum affine</i>	Solomon's Seal Knotweed	Nov.— Nov.— Feb.	Ordinary garden Moist, ordinary	2 to 2½ ft. ½ to 1 ft.	White Rosy red	May— June Aug.— Oct.	Shade Rockery or moist border	Elegant arching stems Pretty in autumn
<i>Polygonatum compactum</i> <i>Polygonatum cuspidatum</i> <i>Polygonatum sachalinense</i>	Dwarf Knotweed Japan Knotweed Giant Knotweed	Nov.— Nov.— Feb.	Moist, ordinary Moist, ordinary Moist, ordinary	1 to 2 ft. 5 to 8 ft. 10 to 12 ft.	White Creamy white Greenish white	July— Oct. June— Aug. July— Sept.	Sunny or shady border Wild garden or woodland Wild garden or woodland	A useful little plant Also named Sieboldi Fine for waterside
<i>Potentilla atrocaerulea</i> <i>Potentilla hybrida</i>	Cinquefoil Double Cinquefoil	Nov.— Nov.— Feb.	Rich, well-drained Rich, well-drained	1 to 2 ft.	Crimson Yellow, crimson, &c.	July— Sept. Sept.	Sunny border Sunny border	One of the best single varieties Many choice named varieties
<i>Primula auricula</i> <i>Primula capitata</i> <i>Primula cortusoides</i>	Border Auriculas Himalayan Bear's Ear Primrose	Sept. Sept. Sept.	Moist, loamy Moist, loamy Light, moist	½ to 1 ft. ½ to 1 ft. ½ ft.	Various Violet Rose, &c.	May— June May— July May— June	Moist, sunny Sun or half-shade Half-shade	Readily raised from seeds Mealy stalks A pretty Japanese sort also known as Sieboldi
<i>Primula denticulata</i> <i>Primula farinosa</i> <i>Primula japonica</i>	Himalayan Primrose Bird's Eye Primrose Japanese Primrose	Sept. Sept. Sept.	Moist Moist rock garden Moist	1 to 1½ ft. ½ to 1 ft. 1 to 3 ft.	Lilac Pale lilac, yellow centre Crimson purple	May— July May— June May— July	Sun or shade Half-shade Half-shade	Alba is a pretty white variety Many beautiful coloured varieties Considered by many to be the finest of all Prim. roses
<i>Primula marginata</i> <i>Primula vu. garis</i> <i>Primula vulgaris</i> <i>Primula a. pl</i>	Margined Primrose Common Primrose Double Primrose Primrose	Sept. Sept. Sept.	Limestone Rich, moist Rich, moist	½ to 1 ft. ½ ft. ½ ft.	Pale lilac Yellow White, sulphur, mauve	April— June Mar.— April— May	Sunny rockery Half-shady Half-shady	Leathery leaves Many coloured varieties Popular in Scotland

Botanical Name	Common Name	When to Plant	Suitable Soil	Height	Colour	When in Bloom	Position	General Remarks
<i>Primula variabilis</i>	Polyanthus	Sept.	Rich, moist	3 ft.	Various	April—June	Sun or half-shade	Popular spring-flowering bedding plants
<i>Pyrethrum coccineum</i>	Coloured Marguerite	Mar.	Rich, deeply dug	2 to 2½ ft.	Red, pink, white	June—Sept.	Sun	Many double and single varieties
<i>Pyrethrum parthe-nium fl. pl.</i>	Whitwort	Mar.	Ordinary	2 ft.	Double white	June—Sept.	Sun	Useful for cutting
<i>Ranuncula pyrenaica</i>	Rosette Mullin	Mar.—April	Sandy and leafmould	1 ft.	Violet, white	May—Aug.	Amongst moist porous rock, facing north	Grow in vertical chimneys
<i>Ranunculus acrifolius</i>	Fair Maids of France	Nov. or Feb.	Moist, ordinary	1½ ft.	Snow white	May—July	Sun or partial shade	Moisture-loving
<i>Ranunculus acris flore pleno</i>	Bachelor's Buttons	Nov. or Feb.	Moist, ordinary	2½ ft.	Yellow	May—June	Moist, partial shade	Showy border plant
<i>Rodgersia podophylla</i>	Rodger's Bronze-leaf	Mar.	Peat	3 ft.	Creamy white	June—July	Moist, shady border	Large bronze green foliage
<i>Romneya Coulteri</i>	Giant Californian Poppy	Mar.	Well-drained sandy	3 to 6 ft.	White	June—Sept.	Southern aspect	Fragrant blooms
<i>Rudbeckia laciniata</i>	Cone-flower	Nov.—Feb.	Ordinary	5 to 7 ft.	Pale yellow	July—Aug.	Sunny border	Much divided leaves
<i>Rudbeckia laciniata fl. pl.</i>	Golden Glow	Nov.—Feb.	Ordinary	5 to 6 ft.	Yellow	July—Aug.	Sunny border	Double flowers
<i>Rudbeckia maxima</i>	Giant Cone-flower	Nov.—Feb.	Ordinary	7 to 9 ft.	Yellow	July—Aug.	Sunny border	Distinct black-brown cone in centre of flower
<i>Rudbeckia purpurea</i>	Purple Cone-flower	Nov.—Feb.	Light, rich	2½ to 3½ ft.	Maroon crimson	July—Sept.	Sunny border	Also named <i>Echinacea purpurea</i>
<i>Rudbeckia speciosa</i>	Newman's Cone-flower	Nov.—Feb.	Light, rich	1½ to 2 ft.	Orange yellow	July—Aug.	Sunny border	The best <i>Rudbeckia</i>
<i>Salvia patens</i>	Mexican Sage	Mar.	Light, well-drained	2 to 3 ft.	Blue	Aug.—Sept.	Sun or half-shade	Tuberous roots, require protection in winter
<i>Salvia virgata</i>	Violet Clary	Nov.—Feb.	Ordinary	3 ft.	Violet blue	July—Sept.	Sunny border	Also known as <i>Salvia nemorosa</i>
<i>Saponaria wernerioides</i>	Trailing Soapwort	Nov.—Feb.	Ordinary	1 ft.	Rose pink	June—July	Sunny, dry rocky	Useful for old walls
<i>Saponaria officinalis fl. pl.</i>	Double Soapwort	Nov.—Feb.	Ordinary	2 ft.	Lilac pink	July—Aug.	Sun and partial shade	Pretty in wild garden

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Botanical Name	Common Name	When to Plant	Suitable Soil	Height	Colour	When in Bloom	Position	General Remarks
<i>Saxifraga cordifolia</i>	Megasea	Sept.	Ordinary	1 ft.	Purplish red	Mar.—April	Sun or shade	Useful in town gardens
<i>Saxifraga cotyledon</i>	Pyramidal Saxifrage	Mar.	Limestone	1 to 3 ft.	White	June—July	Sunny rocky	Pyramid of flowers
<i>Saxifraga crassifolia</i>	Siberian Megasea	Sept.	Ordinary	1 ft.	Rose pink	Mar.—April	Sun or shade	Useful in town gardens
<i>Saxifraga fortunei</i>	Fortune's Rocktail	Mar.	Sandy peat	3 ft.	White	Sept.—Oct.	Sheltered position, half-shade	Large panicles o' flowers
<i>Saxifraga Geum</i>	Arens Rocktail	Sept.	Sandy	1 to 3 ft.	Pinkish	June—July	Sun or half-shade	Easy culture
<i>Saxifraga granulata</i> fl. pl.	Fair Maids of England	Oct.	Ordinary	3 to 1 ft.	White	May	Moist, shady border or rocky	Double flowers
<i>Saxifraga hypnoides</i>	Mossy Saxifrage	Oct.	Moist loam	3 ft.	White	May—June	Half-shade or sun, rocky	Useful in town gardens
<i>Saxifraga longifolia</i>	Queen of Saxifrages	Mar.	Limestone	1 to 2 ft.	White	June—July	Sun or half-shade	Vertical or horizontal position amongst rocks
<i>Saxifraga muscoides</i> Rhei	Mossy Saxifrage	Sept.—Oct.	Ordinary	3 ft.	Rose pink	May—June	Shady rocky	Pretty edging plant
<i>Saxifraga sarmentosa</i>	Mother of Thousands	Mar.	Light, sandy	3 ft.	White	June—Aug.	Shade or sun	Bears runners like the Strawberry
<i>Saxifraga umbrosa</i>	London Pride	Nov.—Mar.	Ordinary	1 ft.	spotted White	May—June	Very sunny position	Useful as edging plant
<i>Saxifraga Wallacei</i>	Wallace's Saxifrage	Oct.—Nov.	Light, ordinary	3 to 1 ft.	White	April—June	Shade or sun	Fragrant, showy
<i>Scabiosa caucasica</i>	Caucasian Scabious	Mar.	Light, warm	2 to 3 ft.	Pale lilac	June—Aug.	Sun	There is a white variety
<i>Sedum acre</i>	Wall Pepper	Oct.	Sandy	3 ft.	Yellow	May—June	Sun	Pretty on old walls
<i>Sedum spectabile</i>	Japanese Stonecrop	Nov.—or Mar.	Ordinary rich	1 ft.	Rose	Sept.	Sun or shade	Atropurpureum is a richer coloured variety
<i>Senecio clivorum</i>	Chinese Groundsel	Nov. or Feb.	Rich, moist	3 to 4 ft.	Yellow	July—Aug.	Sun or half-shade	Useful waterside and wild garden plant
<i>Senecio pulcher</i>	Purple Ragwort	Mar.	Rich, moist	2 ft.	Rose purple	Sept.—Oct.	Sunny border	Often planted on rocky

Botanical Name	Common Name	When to Plant	Soilable Soil	Height	Colour	When in Bloom	Position	General Remarks
<i>Shortia galericifolia</i>	Crimson Leaf	Mar.	Peat and sandy	1 ft.	White tinted rose with age	May—June	Sun or partial shade	Leaves, bronze in sunny position
<i>Sidalcea candida</i>	Greek Mallow	Nov.—Feb.	Ordinary garden	3 ft.	White	July—Aug.	Sunny border	Spreads rapidly
<i>Sidalcea Listeri</i>	Lister's Greek Mallow	Nov.—Feb.	Ordinary garden	3 ft.	Pink	July—Aug.	Sunny border	Rose Gem is deeper in colour, and 4 feet in height
<i>Sisyrinchium grandiflorum</i>	Rush Lily or Purple Satin Flower	Oct.	Peat and sandy	1 ft.	Purple	May—June	Warm, sheltered rocky	Belongs to the Iris family
<i>Solidago canadensis</i>	Golden Rod	Nov.—Feb.	Ordinary garden	4 to 5 ft.	Yellow	Aug.—Sept.	Sunny or half-shady border	Suitable for wild garden
<i>Spiraea Aruncus</i>	Goat's Beard	Nov.—Feb.	Moist, rich	3 to 4 ft.	White	June—July	Partially shady	Beautiful plumes
<i>Spiraea astilboidea</i>	White Astilbe	Nov.—Feb.	Moist, rich	2 to 2½ ft.	White	June—July	Partially shady	Popular for cutting
<i>Spiraea Filipendula</i> fl. pl.	Double Dropwort	Nov.—Feb.	Moist, rich	1½ ft.	White	June—Aug.	Partial shade	Useful to cut
<i>Spiraea palmata</i>	Pink Spiraea	Nov.—Feb.	Moist, rich	1½ ft.	Pink	June—July	Partial shade	Pretty in masses
<i>Spiraea Ulmaria</i> fl. pl.	Double White Meadow Sweet	Nov.—Feb.	Moist, rich	3 to 4 ft.	White	June—Aug.	Partial shade	A double variety of the wild Meadow Sweet
<i>Statice latifolia</i>	Great Sea Lavender	Mar.	Sandy	2 to 2½ ft.	Lavender blue	July—Sept.	Sunny border	Useful everlasting flower
<i>Stachys cymosa</i>	Stoke's Aster	Mar.	Light, sandy	1½ ft.	Lavender blue	Aug.—Sept.	Sunny position	Best on warm border
<i>Thalictrum adiantifolium</i>	Fern-leaved Meadow Rue	Nov.—Feb.	Ordinary garden	1 ft.	White	July—Aug.	Partial shade	Very ornamental foliage
<i>Thalictrum aquilegifolium</i>	Meadow Rue	Nov.—Feb.	Ordinary garden	3 ft.	White	June—July	Partial shade	Columbine-like foliage
<i>Thalictrum Delavayi</i>	Delavay's Meadow Rue	Nov.—Feb.	Light, moist	2 ft.	Purple	July—Aug.	Partial shade	Elegant glaucous foliage
<i>Thalictrum flavum</i>	Yellow Meadow Rue	Nov.—Feb.	Ordinary garden	4 ft.	Yellow	July—Aug.	Partial shade	May be grown in wild garden

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Botanical Name	Common Name	When to Plant	Soilable Soil	Height	Colour	When in Bloom	Position	General Remarks
<i>Trachelium caeruleum</i>	Throatwort	Mar.	Light, sandy	1 to 2 ft.	Violet blue	July—	Warm, sunny	Comes from Mediterranean
<i>Tradescantia virginica</i>	Spiderwort	Mar.	Ordinary garden	2 ft.	Purple	Aug.—	Partial shade	There are several distinct colours
<i>Trillium grandiflorum</i>	White Wood Lily	Oct.	Peat	1 to 1 ft.	White	May—	Shady rock garden	Delightful in colonies
<i>Trollius asiaticus</i>	Globe Flower	Oct.	Deep, rich	2 ft.	Orange	May—	Half-shady	Moisture loving
<i>Trollius europaeus</i>	Mountain Globe Flower	Oct.	Deep, rich	1 1/2 ft.	Yellow	May—	Half-shady or sun	Moisture loving
<i>Verbascum olympicum</i>	Olympian Mullen	Nov.—	Ordinary garden	6 to 8 ft.	Rich yellow	July—	Half-shady or sun	Strictly speaking, these Mullens are biennials, reproducing themselves freely from seeds
<i>Verbascum phlomoides</i>	Woolly Mullen	Nov.—	Ordinary garden	5 to 6 ft.	Rich yellow	Aug.—	Half-shady or sun	Useful in rock garden
<i>Veronica gentianoides</i>	Early Flowering Speedwell	Oct.	Ordinary garden	1 ft.	Grey blue	May—	Sunny border	There are several varieties, differing in colour
<i>Veronica longitola</i>	Speedwell	Nov.—	Ordinary garden	3 ft.	Blue	July—	Sunny border	Atropurpurea is a rich, darker variety.
<i>Viola cornuta</i>	Horned Pansy	Feb. Sept.	Moist, rich	1 1/2 ft.	Blue, yellow, white, &c.	April—	Sun or half-shade	The parent of the garden Pansy and Viola
<i>Viola tricolor</i> varieties	Tufted Pansy or Heartsease	Sept.	Moist, rich	1 1/2 ft.	Blue, yellow, white, &c.	April—	Sun or half-shade	

CHAPTER VII

THE LAWN

NONE can deny the charm of a well kept lawn, especially when of fair extent. The enthusiastic amateur with a small garden has perforce to be content with a small lawn, but so often the little there is is spoilt by being cut up into flower beds. When, especially in a garden of quite limited area, it is decided to devote a certain space to the lawn and so much to flowers, let each section be kept to itself. We have all heard many, many times the old story about the American visitor and the University gardener, and there is no need to repeat it. It has been handed down from one writer to another for generations until now it has become almost a tradition. I am sorry to have to disturb it, but it certainly does not take so long to make a good lawn as the American was led to believe. Given a suitable soil and proper care a good lawn may be had in a year. I do not say that it will not improve in subsequent years. It certainly will if attended to with skill; under unskilful treatment it is just as likely to decline in attractiveness. Although possibly undue stress is laid on preparatory work in gardening, it can scarcely be undervalued in making a lawn. It is perfectly hopeless to attempt to make a lawn attractive if the ground has been ill prepared. A surface of the proverbial smoothness of the billiard table is obtained by skilful raking. It is unwise to prepare ground for a lawn and immediately to sow the seed. Such a proceeding is likely to lead to endless trouble in the future, in the form of an uneven surface and a crop of weeds.

THE BEST TIME FOR SOWING the seed is about the first week in April. September is also suitable. One advantage of sowing in April is that the land can be prepared several months beforehand without detracting seriously from the appearance of the garden, whereas September sowing would be responsible for a bare patch of ground in summer. The first thing is to dig the ground thoroughly, so as to give the grasses a fair depth of soil; this enables them to pass through a dry period without turning brown, as lawns on shallow soil are sure to do. As digging proceeds all large stones and weeds are carefully picked out, so that subsequently there shall be no difficulty in obtaining an even surface. It is well to make a start in September or October. The ground may be left in quite a rough state throughout the winter months; in fact, it is a good plan to leave the soil in the form of trenches, so that as great a surface as possible may be exposed to the action of frost, rain and snow. Then there is a chance of many weeds being



NARCISSI GROUPED ON THE GARDEN FRINGE.

killed, while the land derives great benefit from such exposure. Little or nothing can be done until February, when the soil is levelled and again dug over, care being taken to remove weeds and large stones as before. The oftener the ground is dug during February and March and cleansed of the roots of such weeds as Plantains, Dandelions, Clover, etc., the better "seed bed" will be formed, and the more satisfactory is the lawn likely to be. In March raking and rolling must be begun in earnest for the double purpose of obtaining a "fine" surface—a surface of small soil particles—and a firm one. Once raking is of no use. The rake ought to be used every day for a week or more, and rolling should follow raking every time. Then, by early April, a perfect surface can scarcely fail to result. Naturally digging, raking and rolling cannot be carried out when the soil is wet. As a rule, however, the soil is fairly dry, at any rate on the surface, towards the end of March, and in a "workable" condition.

There is only one word of advice to give in respect of seed, and that is to buy the best. It is sheer folly to buy poor lawn grass seed; the sower little thinks what trouble and disappointment is laid up for him in cheap and nasty grass seed. The seed is sown broadcast, the sower walking from east to west and again from north to south, so as to ensure the land being evenly covered. When purchasing the seed it is wise to state the position of the lawn and the nature of the soil, for the science of preparing lawn seed is a pretty exact one, and the seedsman has special mixtures for certain soils and positions. Grass seed should be sown thickly; to sow thinly is false economy, since a thin sward may result and one may have long to wait for a firm, full lawn. For an acre of lawn from three to four bushels of seed are necessary; for a rod of ground ($30\frac{1}{2}$ sq. yds.), $2\frac{1}{2}$ lb. of seed are sufficient. Seed sowing ought to be carried out on a calm day and when the ground surface is fairly dry. A rake is passed over the soil when sowing is finished, thus covering most of the seeds; then finally comes the roller. There is nothing further to do until the seed germinates (it will begin to show through in about three weeks) except to keep the soil moist in dry weather and to scare the birds away; the latter are most troublesome very early in the morning. When a large lawn area is sown the simplest way of keeping the birds off is to hire a boy and provide him with a pair of clappers, but he must be out early. When the lawn is comparatively small it may either be covered with fish-netting resting on small sticks, or black thread may be stretched from stick to stick not more than 3 inches or so from the ground. There must be plenty of it. As soon as the soil shows green from the sprouting grass there will be no more trouble from birds, for it is the seeds that attract them.

It is commonly advised, first to cut the young grass with a scythe when it is some 3 inches high, but very often it is difficult to find the man with a scythe and a knowledge of its use. So I advise that

the new lawn be rolled several times so as to make the young grass firm in the soil. Then in a week or two a mowing machine that cuts well may be used. The roller should be freely used for several weeks after the grass begins to grow; it is more important than mowing. In fact, I have heard of a gardener who never uses the mowing machine at all until the end of the first summer; he uses the roller instead. This, however, is exaggerated practice, but serves to show the value that is placed on rolling to ensure a firm, even surface. One is often asked how soon after sowing is a lawn likely to be ready for use. From a successful September sowing a tennis lawn might be played on in the July following, but the grass being still thin is easily worn, and bare patches may result. From an April sowing it would not be wise to use the lawn for games the same season.

LAWNS FROM TURF.—A serviceable lawn is more quickly made by laying down turf, but this method is costly, and it is often difficult to obtain really good turf. Needless to say, laying down poor turf is as bad as buying poor grass seed. September is a good month in which to lay down turf; so, too, is April. In this case thorough ground preparation is necessary, and a firm, even surface is only to be obtained by repeatedly digging, then frequently raking and rolling. Turves are most conveniently carted when rolled up, grass side inwards; they are unrolled as laid, and so are disturbed as little as possible. If carelessly handled, they easily break, and are then naturally more difficult to lay down evenly. Each turf (usually about 3 inches deep, 15 inches long, and 8 or 9 inches wide) is laid so that it just lightly touches its neighbour, and so that the joints do not coincide. Some fine soil is spread over them, and with a garden broom or besom is brushed in between the turves. Then comes the most important work of all—the use of the turf beater. The beating solidifies the lawn and should be carried out thoroughly.

MOSS ON LAWNS.—The presence of moss on lawns indicates either that the soil is poor or that it needs draining. The latter is an undertaking not lightly to be entered upon—it is a laborious task. Drainage ought to be ensured before the lawn is made. When moss appears through poverty of soil it is a much simpler matter to get rid of it. The moss is first raked off with an iron rake, although this will for a time make the lawn look worse than it did before. Then fresh soil is spread over the patches: good sifted soil, with which lime and wood ashes, in the proportion of one part of these materials to four of soil, are mixed. When, in a few days' time, a suitable seed bed has been formed by rolling and raking, seed may be sown.

WEEDS.—The presence of weeds on a lawn quite spoils its appearance; they are an endless source of trouble. One of the simplest ways of getting rid of such common weeds as Dandelion, Daisy, and Plantain is to dress the grass with lawn sand. One application, although it may apparently kill them, will not prevent others reappearing; a second application will be necessary. Lawn sand is best applied

in April. It turns the grass brown for a time, but it soon recovers. I have always found that removing the weeds with the aid of an old table-knife is one of the best ways of getting rid of them. It is rather tedious work, certainly, but providing the root as well as the top of each weed be cut out it is certain. If a portion of the lawn is marked off and cleared it is surprising how quickly the work can be accomplished. Another way is to drop into the centre of each weed a little oil of vitriol or sulphuric acid, but though effectual, these poisons need very careful handling, and gloves must be worn. There is really no way of destroying weeds on lawns in a wholesale manner except by the use of lawn sand and cutting them out by hand. It therefore behoves the gardener not to let the weeds get the upper hand, but to eradicate them when they are small and comparatively rare.

CHAPTER VIII

ALL ABOUT ROSES

GIVEN a writer with a willing pen, a day of June, a garden across which the soft wind comes full of the mingled scent of rose blossom—the delicate fragrance of the Teas, the deep scent of the full coloured H.P.'s and the old garden roses such as Cabbage, Provence and Sweetbriar, and the aromatic odour of the Musk Rose, as sweet as in far Himalaya—these, and an arbour with its face to the flowers and leaves and its back to the sunshine, and what realms of romance are not readily conjured up! One's thoughts are carried to the early years of the rose, to the lands of its youth, even to the Garden of Gethsemane, where, now as then, the rose blooms on sacred soil. To ancient Greece and Rome, where the rose was ever cherished by the people, "in their joys and in their sorrows the rose was their favourite flower." Nero is said to have expended at one feast £30,000 in roses; "a nice little order for the nurseryman" is Dean Hole's characteristic comment. Our thoughts are carried to far China and Japan, home of the lovely creeping wichuraiana Roses that have given us such a favourite as Dorothy Perkins; to Syria and Persia, even to the lands of the midnight sun. What tales the rose could tell had I space to act as spokesman! But alas! THE COMPLETE GARDENER has little room to spare for flower romance.

It would seem as though all the world and his wife were growing roses nowadays; and how better can spare time be spent? Rose growing brings fresh beauty into sordid lives, and intensifies the interest of those that are already full. Chance moments snatched from busy days, long hours from those of leisure, all are repaid in full and with compound interest, not in coin of the realm, but in an increased appreciation of the beautiful, brought home, perhaps, to those who have never felt the magic attraction of flowers, and in steps directed to a closer communion with Nature. For is it not true that many can trace their love of gardening, which, rightly regarded, is no more, no less, than a practical demonstration of a real,



THE OLD YORK AND LANCASTER ROSE (STRIPED RED AND WHITE) IN A COTTAGE GARDEN.

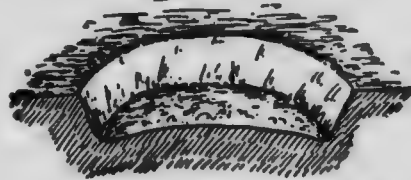
abiding love for flowers, from the time when the rose, the queen of flowers, made her first appeal? With some, indeed, the rose was not only the first, but is still the last and only love. When the late Dean Hole, whom we may regard as one of the most ardent and constant of rose lovers, first fell under the spell of the flower, he tells us that, "I dreamed about roses that summer's night, and next morning hurried over my early breakfast that I might canter to the nearest nursery." Many of us have been equally fascinated, and while nothing else has been able to drag us from our beds at six o'clock in the morning, the rose has done it, and many of us now regard it as the most natural thing in the world that our roses should be the first care at the beginning of each new day.

In rose growing, as in growing everything else, one has to begin at the soil, for it is the soil that nourishes the roots, the roots that feed the leaves, the leaves that support the blossoms. "Take care of the soil," might I say, "and the flowers will take care of themselves," if you "take care of" that unwelcome little grub that comes with the coming of spring! But let us write of pleasant things first, though not counting our roses before they bloom. Why should not soil preparation and planting be considered among the pleasant things of gardening? The gardener who approaches these prosaic tasks with a mind rightly attuned will dream dreams of bursting buds and wide-opening blossoms; there will be soft showers and bright sunshine for him, even though a pall of grey obscures the heavens and a chill wind makes face and fingers tingle. For whatever may be the actual conditions that obtain, they will but serve to heighten the contrast between the real and the unreal, and render anticipation still more delightful. The gardener has an advantage over many practical workers, if he is an enthusiast, in that the pleasant shadow of the future hovers always over the present, the glamour of the unseen veils with a rose-coloured cloak the trials and difficulties of the moment. And if the reader would like to have these pleasant dreams without the sharp contrast (though this, I assure him, makes them all the more real), then let him have the digging and planting done by a jobbing gardener who, whatever his qualifications for the work, and they vary greatly, may occasionally be trusted to do it with some appreciation of its importance if not of its possibilities. For the reader's own sake I trust if he is able he will do his own planting, for

the gardener who entrusts his planting to another is likely, sooner or later, to form one of that already fairly large number of people who find gardening disappointing. And why? Simply because they leave to others that which they should do themselves. Everyone must have felt a pride in home-raised cuttings or seedlings; and what is pride but the outcome of love, fond and real? Only, as a mother with her children, does the gardener come to know and to love his plants and flowers when, from planting to blossoming, he and he alone has tended them. The longer he gardens the greater will be



The correct way to prepare holes for planting Roses. They are wide, and slightly higher in the centre than at the sides.



The wrong way to plant a Bush Rose. The hole is the wrong shape and the roots cannot be arranged naturally.

his love for the flowers he grows. Let us, then, plant our own roses and for a time relapse into the prosaic and practical, for in plant growing, full flower beauty waits only on those who till the soil.

Planting Roses.—There is probably more varied advice given on the planting of roses than on any item of gardening work; the soil preparation, which is a necessary preliminary and may be considered in connection with it, is the subject of even more contradictory direction. Rather than attempt to weigh the possible disadvantages of one method with the possible advantages of another, it will be more to the point, I think, if I give my own experience and my own methods, for they have for some years given me most satisfactory results.

My soil is ordinary garden loam—that is to say, it is the kind of soil one would expect to find in any fairly well tilled garden. It is neither very heavy nor very light, although of course clay preponderates; otherwise it would scarcely grow roses. The method I adopt is a simple one. I do not trench 3 feet deep, as is often advised. Not for the reason that I underestimate the value of trenching, but for the very human reason that full trenching is hard and heavy work, and that a less elaborate method gives good returns. I like to do my own digging, then I have the satisfaction of knowing that it is well done



The correct way to plant a Standard Rose Tree. The roots are spread out, the stake is fixed before the soil is filled in, and the latter is made firm about the roots.

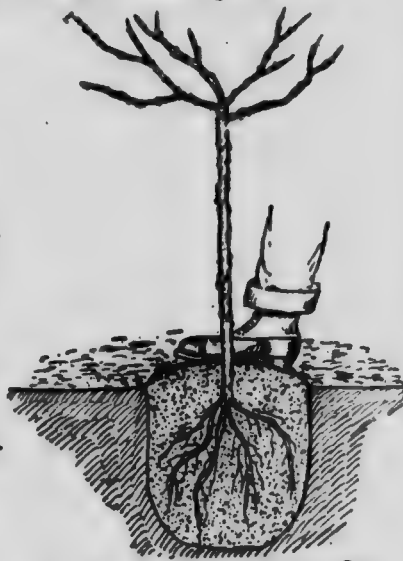
or, at least, done to my liking. In preparing a bed for rose planting I first of all take out a trench 18 inches deep and 2 feet wide across one end of the ground. The soil at the bottom of the trench is then turned over with a fork. We thus get some 2 feet depth of tilled soil. The top "spit" of the undug soil is then turned into the trench; the second "spit" is also turned into the trench upon the first "spit." Thus, to use an "Irishism," we have proceeded one step backward, a new trench having been opened. The soil at the bottom of this is forked over. It may be worth while to mention that in digging over the first "spit" the worker faces the open trench; in turning over the second "spit" he works sideways to it; so, too, when forking the soil in the bottom of the

trench. There is really nothing more to tell except to say that the worker "proceeds backwards" until the end of the plot or bed is reached. The last trench is filled with the soil that was taken out in making the first trench. This, by the by, should at once be placed at the end of the ground, so as to save a second removal.

The question of manuring is one of importance to the welfare of the roses. There is no doubt that farmyard manure is the best stuff for digging in the soil when preparing for



The correct way to plant a Bush Rose. A covering of manure is also shown.

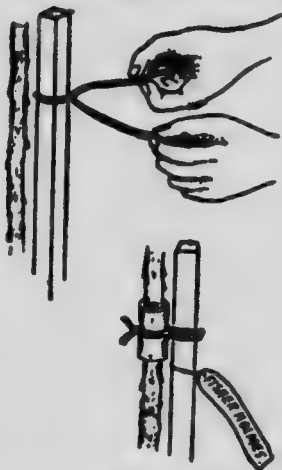


The wrong way to plant a Standard Rose. The hole is not wide enough and all the soil has been filled in before being made firm.

planting, and it is best placed below the second "spit"—that is, immediately upon the forked-up soil at the bottom of the trench. When farmyard manure is not to be obtained readily—and near towns it appears to be difficult to procure—the best substitute is basic slag. This may be conveniently applied after the bed is dug, by spreading it over the surface at the rate of $\frac{1}{2}$ lb. to each square yard, and then digging it in. In any case, whether farmyard manure is used or not, basic slag is an excellent fertiliser to apply in autumn; it is a slow-acting manure, and the plants will derive benefit from it the following season.

The actual planting presents no difficulties. The chief

points to bear in mind are to dig a hole large enough for the roots to be spread out in it, to plant at such a depth that the point where the plant was budded—the junction of stock and scion—is covered with about 1 inch of soil; first to soak the roots in a pail of water or puddled clay for several minutes, and to cut off all broken and bruised root ends. It is most harmful to leave the plants lying about when waiting their turn to be planted; they should either be placed in water or covered with soil. The root fibres so quickly dry up and perish when exposed to the air even for a short time. Finally, it is necessary to make the soil firm about the roots. It follows from this that planting cannot be done when the ground is wet; neither is it wise to plant when the ground is dry, as it sometimes is in October. As to the time of planting, early November is the best of all. However, rose planting may be carried out successfully from the middle of October until the end of March or early April, but not later when the plants are from the open ground. Roses from pots may be planted at any time of the year, though preferably not later than May, since the roots are not disturbed and the plant receives no check.



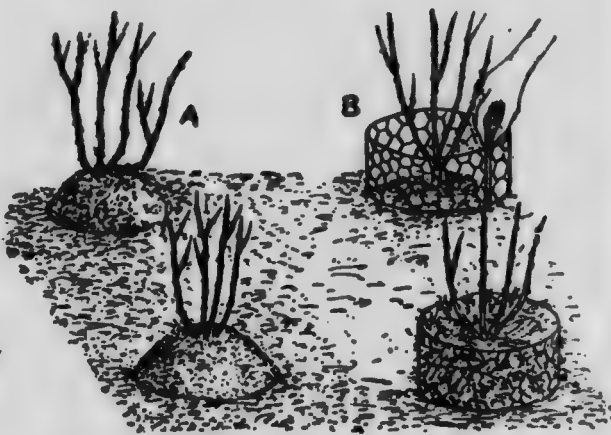
The best way to secure a Standard Rose to the stake.

If the removal is carefully carried out one may shift even large roses from one part of one's garden to another without their suffering, providing they are transplanted, say, not later than the first week in November. I have shifted 6 feet high plants of Hugh Dickson from a bed for which they proved too tall, planting them against a fence without even a shoot shrivelling. When bought plants are put in, severe pruning is invariably necessary the following spring. Some growers advise covering the rose beds with manure in autumn when planting is finished. Others, and I am among the number, think a covering of manure in spring preferable. I give a coating of farmyard manure as soon as pruning is finished, which is usually about the first week in April. This is forked just beneath the surface. The roses receive no further manure, except occasional dressings of fertiliser during summer.

There are many excellent special fertilisers on the market, as, for instance, Clay's, Guano, Wakeley's Hop Manure (which, by the by, is an excellent substitute for farmyard manure), and others. Tonks' manure is especially beneficial to roses. It is compounded from a prescription formulated by the late Dr. Tonks, and may be purchased already made up. Those who like to mix their own may care to know the ingredients, which are as follow:—Superphosphate of lime, twelve parts; nitrate of potash, ten parts; sulphate of magnesia, two parts; sulphate of iron, one part, and sulphate of lime, eight parts. This is applied in early spring at the rate of



Protecting Rose Tree on wall.



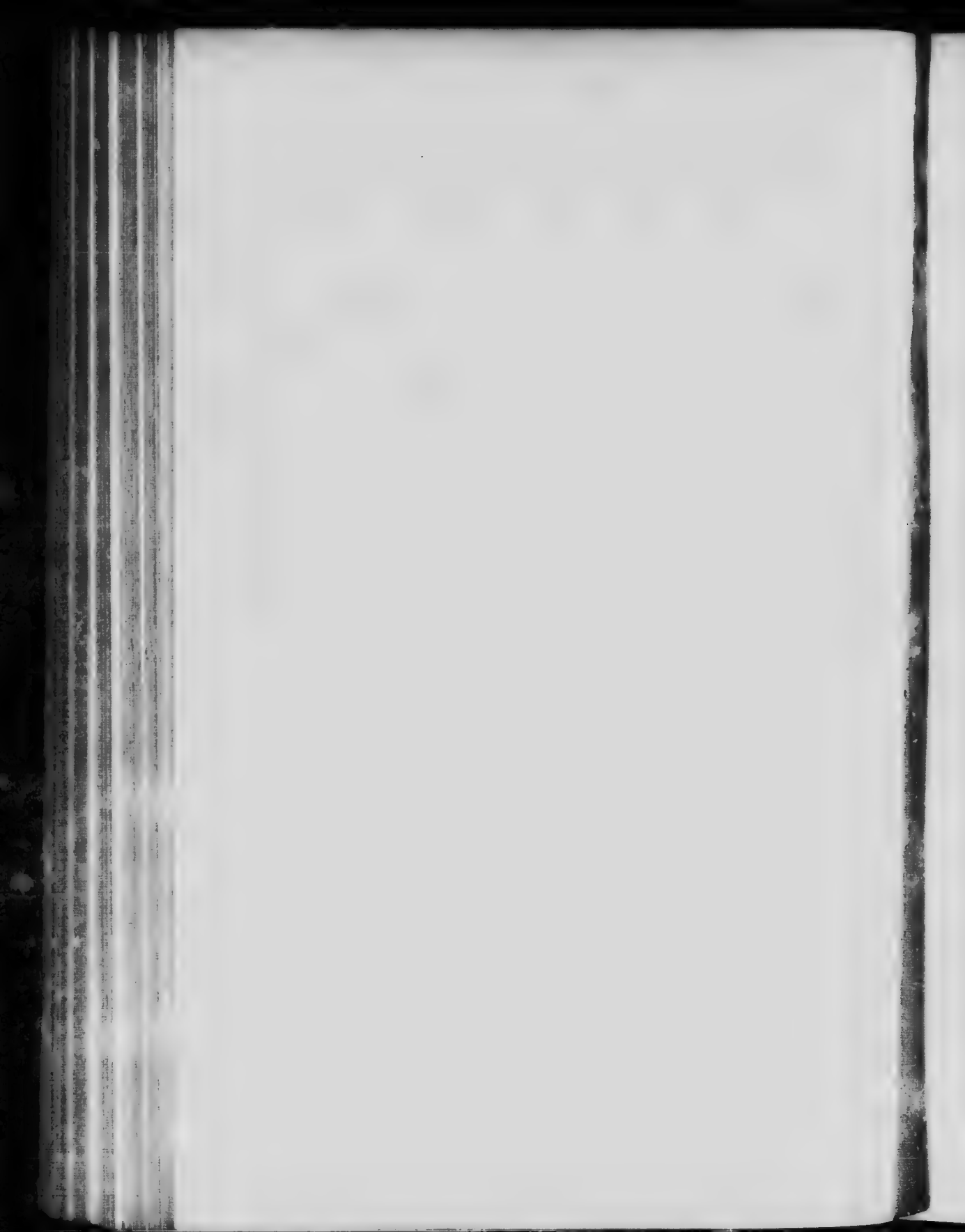
Protecting Bush or Dwarf Roses with heaps of soil or with leaves inside netting.

one pound to the square yard. Tonks' manure is best applied in February. It is scattered on the surface of the bed, and then turned in with a fork.

It may be well to remind rose planters how necessary it is to secure standards and climbers to their stakes or the wall immediately planting is completed. November is notoriously a windy month and, as I know to my cost, many shoots may be broken off if they are not made fast to their supports. It may be said that I do not practise what I preach; but even supposing this to be the case, surely it is no good reason why I should not give others the best advice. It is true that I have neglected always to observe the rules that I now give for the guidance of others; but have I not paid the penalty? I would parody the old adage and say that, "A tie in time



ONE OF THE FINEST OF WHITE CLIMBING ROSES, *WÉLICITÉ PERPÉTUE*
COVERING A GATEWAY.



saves nine," but as a matter of fact it does much more, it saves a rose from disfigurement and possible destruction.

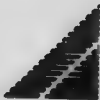
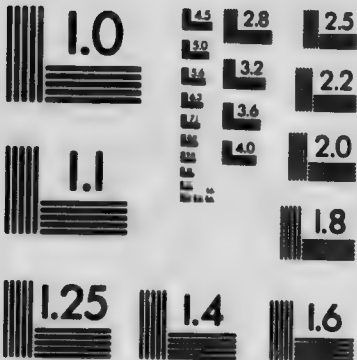
Winter Protection.—Then comes the question of protection, which I am convinced is made too much of, so far, at least, as concerns gardens in the southern counties. I live in Middlesex, and I never protect any of my roses. Out of the many I have from time to time planted I can only remember losing one. Of course, if I had given the plants adequate protection I should not have lost even that one, I imagine some "protection" enthusiast exclaiming. But I submit that my experience makes out a very good case for "non-protection"—with *no* political significance, I protest! Those who have the fortune to live in the cold northern counties (the very mention of which fills me with uneasiness, so long have I lived in the south!) should protect their Tea roses, but all the Hybrid Perpetuals and most of the Hybrid Teas are quite hardy. At least, there is no reason why anyone should take any risk, for it is the simplest thing in the world to protect one's roses. There is no need for any of the elaborate methods often advocated; a little heap of soil 3 or 4 inches high, around and among the lower branches, is all that is required. Readers may well cry "shame" that I do not even take so simple a precaution to protect my own roses rather than run the risk of losing even one; and while that censure is perhaps well deserved, I protest that I am so busy writing about roses in the winter that I am apt sometimes to leave them to look after themselves. And I make bold to say that it would be all the better for many other roses if they were similarly treated.

The surest way to weaken a rose is to coddle it. Many of those who protect their plants with bracken, straw and other material, leave these about the plants until late in spring, with the result that the roses start into growth earlier than they would otherwise do, and such growth as they make beneath the seductive covering that gives them a dangerous and unnatural warmth is soft and sappy and falls an easy prey to the least frost. And when is the rose grower out of the wood so far as late spring frosts are concerned? Justly we may term this winter protection a "wolf in sheep's clothing," especially so far as the inexperienced gardener is concerned. And why go to this trouble when mother earth is all they need, and when nothing is better or even so good for them? Even I, who would seem to hold a brief for garden soil as if it were



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only to be bought with bags of gold (and, indeed, if you want a bag of the best "greasy loam" in which to pot a few favourites it is dear enough in all conscience), do not tell the reader to protect his standards with it! An armful of bracken or heather thrust among the branches is most to their liking, and there is nothing better for those rather tender Teas that clothe the south wall. The mention of tender Tea roses reminds me of a wonderful plant of Climbing *Devoniensis* that I saw the other day in a friend's garden in Middlesex. It is on a wall facing west, and must be quite 20 feet long. It is a giant plant with great limbs, such as one more commonly associates with a bramble than a rose, and when I was told its name, involuntarily my thoughts turned to that description of Climbing *Devoniensis* in the National Rose Society's Catalogue, which says of this variety that it is "tender." "Tender," indeed! This rose, I was told, never had further protection than that given by the wall. All of which, I make bold to say, seems to support my assertion that roses are hardier than they are credited with being.

The fact is, that one never knows what a rose will do in one's own garden until one has planted it there. It may quite conceivably do something entirely different from its accomplishments in all other gardens in which one has seen it growing. If not, how is it that the old Hybrid Perpetual Margaret Dickson, which most of us know only as a vigorous bush, should, in the Rev. David Williamson's garden in northern Wigtownshire, find its way to the top of a support 20 feet high and give flowers even on Christmas Day? Mr. Williamson himself does not know why, so it is obviously out of my province to attempt to explain it. But I am afraid that I am getting "wide of the mark." Still I hope I shall be excused, for I believe that nothing so helps an amateur as a narration of the experiences of another, if I may class myself as an amateur. However, if I am not legally an amateur, I am one at heart, and nothing gives me greater pleasure than to enter into the difficulties of the inexperienced gardener, with whom, indeed, I have much in common, since I am always making mistakes and always learning something about flowers and their ways. We have had soil preparation, planting and protection, now let us see what there is to be said for and against pruning.

Pruning after Planting.—Every professional agrees that it is the best policy to prune a rose hard, to cut its growths

almost to the ground in the month of March following planting. I believe, too, that most amateurs in their heart of hearts know this as well as the professional, but they have not the courage to put the precept into practice. At any rate, they have been told times enough. Anyone with a knowledge of the likes and dislikes of roses has doubtless had the pleasure of advising a friend as to the method of pruning his roses the first spring after planting. You find that he has cut bush roses back in the orthodox way; but the climbers, those with nice long growths that seem to say, "Ah! just leave me alone, and I promise that you shall not be disappointed"—with those it is different. He has listened to the siren's voice, he has started on that seductive short cut to Elysium. Naturally you expostulate with him, you argue, and finally threaten his roses will all the evils to which roses are heir. But no, he has heard the entrancing call, he is enraptured by the charm of the dreams he has dreamed, and all entreaty is vain. Since he will do so, he must tread the path, which, alas! so many have trodden—I am not ashamed to confess that I am found among the number—that leads without delay to disillusion. You are told in a more or less shamefaced sort of way that, "I thought I ought to have cut them harder back, don't you know; but then I was not quite sure." And, knowing better, you interpret this as really meaning that the gardener knew that the roses ought to be cut to the ground, but that he could not bring himself to do it. How much wiser would he have been to go away for the day and commission the jobbing gardener to come in and cut off not only the heads, but the legs also of all the newly planted roses. The jobber would have had no scruples about doing it, for the more cutting the untrained worker can do the better he is pleased, as a rule.

But let me to the point, and say that every growth of every rose you plant between November and March should be cut to within three or four buds of its base about the last week in March or the first week in April. As a preliminary, the growths may be half cut away as soon as they are planted. I have one crumb of comfort for the tender-hearted rose grower. If it does really go seriously against the grain to treat the plants in this way, then all those that belong to the wichuraiana class may be more leniently dealt with, although, personally, I treat them all alike. I am afraid I shall need at least a paragraph to explain all that is denoted by that

fearsome word "wichuraiana"—a word that, though used glibly enough by gardeners and garden writers, is more often than not misspelt. I have made sure of that extra "a" before venturing on this mild criticism! The original rose called wichuraiana is a charming Japanese creeping kind with very long, slender growths and pretty little white blossoms, and by cross-breeding with some other roses distinguished by large flowers of rich colouring, Dorothy Perkins and many others have been evolved. They are commonly referred to as wichuraiana roses. Well, these make such remarkably vigorous growth with little or no attention on the grower's part that it is not necessary to cut them hard back to induce them to grow strongly. And there is the whole case in a nutshell! One may leave the best growth almost its full length, and shorten all others by about one half. So much, then (and it is much more than I had intended), about pruning newly planted roses.

Pruning Bush or Dwarf Roses.—And now to the pruning of roses that are not newly planted. I warn those who are not interested that it is a complex subject, but if it is any inducement to the reader to read on, I will be as brief as possible, if only for my own sake, for the printer is clamouring for "copy," and, alas! I have yet far to go if **THE COMPLETE GARDENER** is to justify its title. How, and where shall I begin? What does the amateur first want to know when he is told how to do anything in the garden? Why, he wants to know *when* to do it. Happy idea! The best time to prune all roses that are commonly grown as bushes is, in the southern and south midland counties, the third week in March. An exception is made in the case of Tea roses, the pruning of which is deferred until the first week in April. But nowadays, Hybrid Teas and the true Teas are so much mixed up that even the rose expert—and by this I mean the professional who grows nothing else but roses—even he is not sure to which class some of them belong. In proof of this I could mention several roses that are classed in one catalogue as Teas, and in another as Hybrid Teas! I mention this because the true Teas are not so hardy as the crossbred or Hybrid Teas, and while one may not prune the true Teas until April, the others are pruned in March. But perhaps this is a futile point and not worth labouring. In the northern and north midland counties roses are pruned a fortnight later. In the descriptive lists given at the end of this chapter

will be found the names of numerous roses for the amateur, and in many cases particulars of the required pruning are given, so that here I need not enter into details of the varied pruning suited to different sorts. This knowledge, indeed, is only to be acquired by a wide experience among the different classes of roses, so I shall confine myself to an explanation of the principles and practice of rose pruning generally.

Let us first consider bush or dwarf roses; those most commonly grown in this form are Hybrid Perpetuals, Hybrid Teas, and Teas. It is among these classes that the amateur will find the best roses for garden display and for cutting. Apart from a knowledge of the characteristics of each variety, which I cannot here attempt to convey, the pruner should first acquaint himself with the habit and manner of growth of each sort. Some grow much more strongly than others; some grow erect; others are inclined to spread, and so on. Such an acquaintance will give the reader a clue as to whether he must shorten the shoots little or much. In any case, the first care is to cut out all growths that are soft and bend easily to the touch; these are quite useless. Then, all thin and weak shoots that obviously can never bear a decent bloom are to be cut out, and those that have grown towards the centre of the plant are either cut out or shortened to a bud that points in an outward direction. If they can be spared, they are cut away altogether. The experienced rose grower aims at keeping the centre of his plants open, and this is accomplished by cutting every growth to a bud that points away from the centre. This is quite one of the most important items the pruner has to bear in mind, and makes all the difference between good and bad pruning. Then comes the great question of, How long shall we leave each growth? It is much more easily asked than it is satisfactorily answered. Something depends upon the aims of the grower. If he likes to have a tidy rose garden with each shoot more or less in its proper place, and to have fewer blooms of good quality rather than many blooms of fair quality, then all growths of, say, the thickness of a lead pencil or the little finger, are cut to within 3 or 4 buds of the base. If quantity rather than quality is the end in view, then such growths may be left 6 or 8 buds long. In plain words and figures, I cannot get nearer to a precise explanation of my point; in fact, I feel I am rather foolish to attempt so much. But

having done it and having no eraser at hand, I will let it go, trusting to the intelligence of the reader to make up for what I am lacking in clear description. Growths that are not so thick as a lead pencil are cut back to within two buds of their base. In this case it does not matter whether you want many or few flowers, for you may think yourself lucky to get any at all! If you are fortunate enough, by good cultivation, to get growths on the roses to which the pencil standard does not apply then, if you cannot by the law of averages judge how long to leave them, I advise that you call in the nearest qualified gardener to help you out of the difficulty. These remarks apply to the Hybrid Perpetual and the Hybrid Tea roses. The pruning of the Teas is so simple as scarcely to need doing at all. Not to continue in a paradoxical strain, they are generally so well pruned by the winter that the gardener's knife is scarcely required. The stronger shoots are cut to within four buds of the base, and the weaker growths to within two buds. If as many blooms as possible are wanted without regard to size and form, then the strongest may be left two or three buds longer. But I would strongly advise the amateur who values the expressed admiration of his friends and really wishes to see his roses at their best, to prune hard rather than leave the shoots too long. It is certainly a case of "spare the knife and spoil the rose" so far as most of the roses commonly grown are concerned. Light pruning, as a rule, lays the foundation of a rose that is bare at the base and full of weak, spindling growths at the top. It certainly does so if the grower does not prune hard the first year or two. All things considered, I shall pose as an advocate of hard pruning, for I have found that the average rose lives longer and gives more blooms worth having than a rose that is lightly pruned.

Pegging Down Roses.—There are exceptions, as may well be imagined, among the wonderful variety that is found in roses at the present day. The first exception is found in those varieties that make vigorous growth even when hard pruned; this would seem to indicate that the orthodox method is not for them. Neither, in fact, is it suitable. If grown in a bed or border away from wall or fence, the proper way to treat them is by means of what is known as "pegging down." This, rendered plain, signifies that instead of being cut back in March, the growths of the previous year are scarcely, if at all, shortened (although if the tips are soft they are cut



SHOWING HOW VIGOROUS ROSES ARE PEGGED DOWN INSTEAD OF BEING HARD PRUNED.

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off), and they are secured to the ground by means of pegs. This is easily accomplished by tying a piece of string to the end of the shoot and tying this to a peg stuck in the soil. This miniature rose arch will be one mass of blossom in summer. Each bud will produce a bloom or bunch of blooms according to its habit. The grower proceeds in autumn to cut out the growths that have flowered, so that fresh shoots may have it all to themselves. They, too, are treated in the same way the following spring; thus in roses of this type there is a constant succession of young growths of great vigour taking the place of those that have given their bloom, and each year's supply is pegged down in March. There is no danger of the supply giving out if the old shoots are regularly cut out when the flowers are over. Such roses as these take up a lot of room, and it is useless to grow them in the same bed with others of ordinary vigour, for the latter will be simply smothered. I know this from unfortunate experience, and as my garden is of limited extent, I gave up growing them in a rose bed, and now have them against a 4 or 5 feet high fence. A few sorts that I have found need this treatment are Frau Karl Druschki, Hugh Dickson, Mrs. Stewart Clark and Clio. But one may peg down any rose that makes unduly vigorous growth if one wishes to have plenty of blossom and there is the necessary room at disposal.

Pruning Climbing Roses.—This need present no difficulty, although it is true it seems to puzzle many rose growers of some years' standing. But, as a rule, where they err is not in pruning the plants insufficiently, but in pruning them too much. While systematic and regular pruning is good for the dwarf roses, climbing varieties, as a rule, are all the better for light pruning. The best blooms of a climbing rose are produced by one-year-old growths and, theoretically, the shoots that have bloomed should be cut out as soon as the flowers are over, so that fresh growths may be encouraged to take their places. This is certainly correct advice, but some sorts are so accommodating that the removal of the older growths may often be dispensed with. They are found among the wichuraiana varieties. These bloom so freely, even from the side shoots that form on the two- and three-year-old stems, that it is a pity to cut them out as long as there is room for them. Of course, preference is always given to the youngest, and it is unwise to crowd the growths together, or in aiming at getting a superabundance of blossom the grower may find

that unhappily he obtains none at all worth having. Thus, while liberties may be taken with the Dorothy Perkins class of rose that would lead to disappointment with other kinds, it should not be forgotten that no rose will bloom well if its growths have not a fair share of sunshine and fresh air. Here are the names of a few that may be neglected for two or three years so far as pruning is concerned and be none the worse for it, and in the garden of the inexperienced grower they may conceivably be all the better :—Dorothy Perkins and its first cousin, if not its sister, Lady Gay, Auguste Barbier, Alberic Barbier, Tausendschon, Minnehaha, Hiawatha, White Dorothy Perkins, Jersey Beauty, Elisa Robinson, Gardenia, Lady Godiva, Joseph Billard, and Edmond Proust.

Climbing roses belonging to the multiflora class, of which Crimson Rambler is a type, are not to be treated so cavalierly in the matter of pruning. There is a great difference in the quality of the blooms produced by one-year-old growths and those of greater age. The shoots of the previous year's growth yield fine flower bunches direct from the main stem, but all other growths bloom only from comparatively weak side shoots, and their flowers are not to be compared with those from younger stems. It is thus not wise to take liberties with Crimson Rambler and its near relations, or they will retaliate by rewarding the gardener in niggardly fashion in the matter of blossom. Let me name a few of these near relatives so that the reader may be forewarned, and treat them with the respect that they at any rate seem to think is their due. Some of the most familiar are Aglaia, Blush Rambler, Crimson Rambler, Electra, Hélène, Leuchtstern, Mrs. Flight, Philadelphia Rambler, Psyche, Robin, and Waltham Rambler. "Cut out the old, train in the new" should be the grower's motto in dealing with these.

I must just say a word about the pruning of the Noisette roses, for they need considering separately, and among them are such favourites as William Allen Richardson and Rêve d'Or. They are not so adept at producing fresh vigorous shoots from the base of the plant as varieties of the two classes just mentioned, and therefore the older shoots must be treated with greater consideration than usual, since when there are few to replace them we must needs make the best of those we have. As a rule, if well planted and hard pruned the spring following planting they grow vigorously enough for the first two or three years; afterwards an opportunity is usually

offered to the practised pruner to give proof of his skill. This he will do by bending down some of the strong growths that have assumed a perpendicular position, by shortening others to within a few inches of the ground, and by seeing that all shoots are spread out as much as possible. Everyone must have noticed that all plants grown against walls (and it is often as wall roses that the Noisette varieties are valuable) show most vigour at the top. If this state of things is allowed to become too pronounced it must ultimately mean that the base of the plant gets bare. Noisette roses other than those I have mentioned are found in Celine Forestier, Maréchal Niel, Fortune's Yellow, Lamarque (all needing the shelter of a warm wall facing south), L'Idéal, Alister Stella Gray, and C. Kuster. So much, then, for pruning the roses that are commonly grown. What I have not made plain I hope the accompanying sketches will do. I am trusting to them to make up for my shortcomings in description. There is really not very much to say in respect of the other classes of roses that are comparatively rarely grown that would interest the average amateur. They nearly all need similar treatment, which is, that you cut out some of the older growths occasionally in late summer when the plants have done flowering, and at the spring pruning, which is practised in late March, you cut back about half-way each remaining shoot.

Half Standard Roses.—Half standard roses are those with a stem about 30 inches in height; ordinary standards have a stem 3 feet or 3 feet 6 inches high. Half standards have several advantages; they are more attractive in form than full standards, they are well suited to small gardens, they are generally easier to grow—some varieties thrive particularly well in this form—and they are as a rule more attractive than the tall standards in beds planted with dwarf or bush roses. There is little information to give that concerns them specially. They need a soil dug to the depth of 2 feet in common with other sorts, and should be planted 3 feet apart, then one may have a few bush roses underneath. The foliage is syringed every evening during the summer months to keep it free from dust, and from greenfly. Liquid manure is given once a week from the end of April onwards, and the soil is frequently hoed to keep a loose surface. If liquid farmyard manure cannot be conveniently obtained, a simple way to provide it is to immerse, in a tub of water, a bag containing a bushel of cow manure or horse manure. The water soon

becomes saturated with the manure and provides an admirable plant food. It should be given in dilute form, half fresh water and half manure. Staking is a matter of some importance in growing half standards, and there is nothing better for the purpose than hazel sticks, the tops of which should just reach to the "head" of the tree, but should not show through the branches. The best kinds to grow as half standards are the Teas and Hybrid Teas, although one or two of the Hybrid Perpetuals are suitable, as, for instance, Frau Karl Druschki and General Jacqueminot. The following all make excellent half standards:—Amateur Teyssier, blush; Antoine Rivoire, cream; Caroline Testout, pink; Augustine Guinoisseau, white, or nearly white; Dean Hole, salmon pink; General McArthur, red; Gustav Grunerwald, salmon rose; Lady Roberts, white and yellow; Laurent Carle, red; La Tosca, blush; Mme. Hoste, cream; Madame Abel Chatenay, salmon and rose; Mme. Léon Pain, white shaded fawn; Mme. Ravary, yellow; Mrs. Aaron Ward, yellow; Prince de Bulgarie, salmon pink; Joseph Hill, yellow and pink shades; Richmond, red; Princesse Mertchersky, silvery rose.

Home Grown Roses.—Many roses may be quite easily grown from cuttings. There is a fascination about roses grown in this way that is lacking in bought plants, for what appeals to the garden owner more than plants that he has reared himself? If the amateur attempts to grow any and every rose in this way disappointment is in store for him. Some thrive admirably from cuttings, while others fail. It is important to know which may be tried with success. China roses root readily, so do many of the Hybrid Teas that are of vigorous growth; the climbing roses generally are particularly easy, and some of the Hybrid Perpetuals. The Tea roses usually are difficult. Here is a selection that the beginner may attempt with every hope of success. Any of the climbing sorts, but especially Dorothy Perkins, Crimson Rambler, Trier, Conrad F. Meyer, René André, Minnehaha, Tea Rambler. I have plants of most of these in my own garden that I have raised from cuttings. Other sorts that take root readily are, among the Hybrid Perpetuals, Hugh Dickson, Frau Karl Druschki, Mrs. John Laing, Captain Hayward, Margaret Dickson, Captain Christy. Among the Hybrid Teas are such as La Tosca, Mme. Abel Chatenay, Caroline Testout, La France, Viscountess Folkestone, Grand Duc Adolph de Luxembourg, Grace Darling, Mrs. Stewart Clark. I have raised



ROSE DUNDEE RAMBLER.

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many roses from cuttings, and this is the method that has given me the best results. I have an unheated greenhouse, and in October I place in it a large earthenware vase or wooden tub. This I fill with soil or sand, ashes or cocoanut fibre, whichever happens to be most easily procured—it does not much matter which. The cuttings are then chosen from growths that have produced blooms during the past summer. I like to have them not less than 6 inches long, although I have rooted them when only 3 or 4 inches in length. However, it is best to get them from 6 to 9 inches long if possible, but often this cannot be done without cutting back the parent rose too much. They are inserted firmly (this is important) in 5 inch-wide flower pots, filled with sandy soil, drainage, of course, being provided. The flower pots are then plunged to the rim in the soil or whatever material is used for filling the tub. They are watered, and a bell-glass is put over them. Care is necessary to see that it is pressed into the material in the tub so that the cuttings are kept perfectly airtight. I give them practically no further attention until the following March, when I carefully take them out of the pots in the expectation of finding them rooted, and rarely am I disappointed. They are examined occasionally during the winter to see if water is needed, but the soil dries little in an unheated house, especially under a bell-glass, since evaporation is prevented. In March the rooted cuttings are potted off, singly, in small pots; if any are not yet rooted, they are again put back under the bell-glass until roots are formed. While some may not have actually roots they will almost certainly have formed a "callus," or ring of tissue, at the base of the cutting from which roots are soon emitted. After potting off the cuttings in small pots it is advisable to keep them under a bell-glass for a few days, or the sudden change of temperature and root disturbance together may check them, and in plant growing a check to growth is always to be avoided. In three or four weeks they will be nicely rooted in the small pots, and late in April or early in May they may be planted out of doors. They will most probably give a few blooms the first year and should flower well the next. Those who have no greenhouse may put the cuttings in the soil out of doors with every likelihood of a large percentage taking root. The method of procedure is described and illustrated in the following notes and accompanying sketches:—

Roses of a vigorous nature are readily increased from

cuttings, and do equally as well on their own roots as when budded or grafted. Late September or early October is the best time to insert cuttings out of doors, and to ensure success



Fig. 1.—Good types of Rose Cuttings. A with a "heel" of old growth, B prepared in the ordinary way.

Fig. 2.—A useless Cutting. The upper buds have begun to grow and the lower buds are cut out.

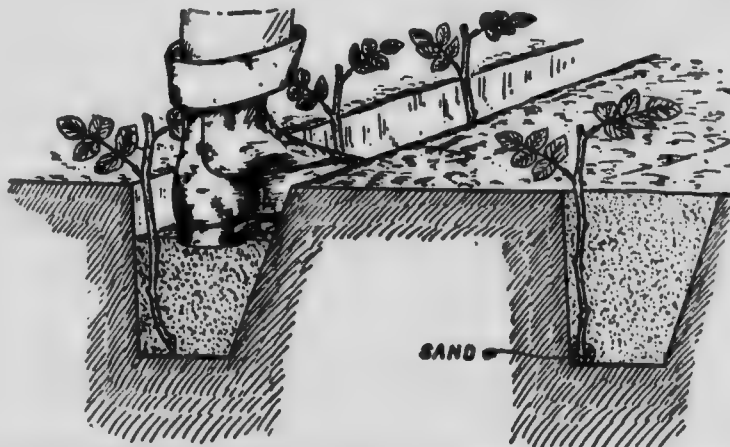


Fig. 3.—The proper way to insert Rose Cuttings. Three parts of the stem below ground.

some little care must be exercised in selecting the growth. Firm, well-ripened shoots that have produced early flowers are the most suitable providing the buds in the leaf-stalk

axils are quite dormant, and as many of the shoots as possible should be taken with a heel of old wood attached at the base, as this causes more speedy rooting. The cuttings should be from 7 to 9 inches long, and have all the leaf stalks, except



Fig. 4.—The wrong way to put in Rose Cuttings.
Too much stem above ground.

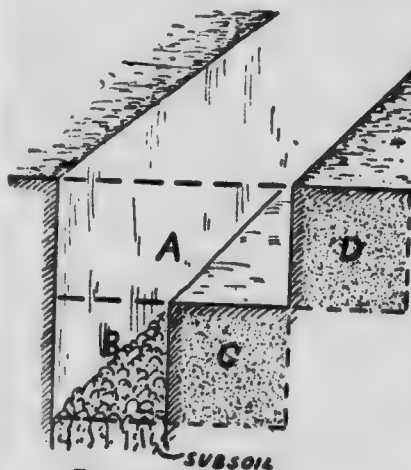


Fig. 5.—How Soil is Trenched.

Trench A, one spit deep and about two feet wide, is first dug out, and the soil removed to the opposite end of the bed. Trench B is then dug out, one spit deep and half the width of trench A, and this soil also removed to the opposite end and kept separate. The subsoil in trench B is then well stirred and broken up.

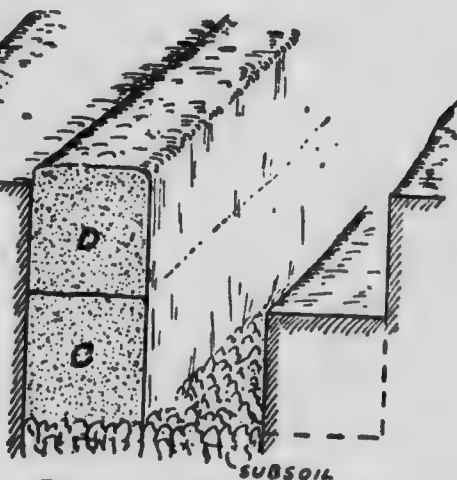


Fig. 6.—Trenching the Ground
(second stage).

The soil C (Fig. 5) is turned into trench B, and the soil D (Fig. 5) on top of this as indicated. This process is repeated until the last trench is reached, when the soil first removed is filled in.

two or three at the top, removed, but the whole of the buds in the axils should be left intact on the stems, as frequently, when the exposed part of the cuttings is killed by severe frosts, the buds underground remain untouched and send up strong shoots. A sheltered position should be selected for the cutting bed, and the ground be dug two spits deep, and have plenty of road grit incorporated with it. When the surface is dry the whole should be firmly trodden. At least two-thirds of the length of each cutting must be buried in the ground and, if the soil is at all heavy, some coarse sand should be placed in the bottom of the trenches. The soil must be made firm, especially about the base of the cuttings, which should be 6 inches apart in rows 12 inches apart. Protection, consisting of litter, may be provided during severe weather, and after a thaw the soil about the cuttings will probably require making firm again.

Standard Roses.—Perhaps the most important point in connection with standard roses is the selection of varieties, for some varieties will grow as standards and others will not. Need I say how necessary it is to choose those that will? The details of cultivation are essentially the same for standards as for dwarf or bush roses, so I need not repeat the directions already given. Staking the trees when they are planted will probably commend itself as a matter of moment. If it does not at the time, it undoubtedly will do so later, when some of the plants have been buffeted and perhaps broken by the winter gales. The amateur gardener is proverbially procrastinating, and is given to postponing the work of staking roses until to-morrow; and do we not all know when to-morrow comes—or, rather, does not come? Let me advise the amateur to order a stake with each standard he buys, for there is often trouble in getting the right sort locally. This is quite the simplest way out of the difficulty. Then the stake can be put in before the roots are covered over, as it should be. Standard roses are protected during winter by looping the growths together and tying straw or bracken or heather round the shoots. Many simply thrust some bracken between the branches, and in the southern counties this plan answers admirably.

We may conveniently divide standard roses into three classes—those with small heads, those with large heads, and weeping standards. Weeping roses are a thing apart—they are altogether too beautiful to discuss or to criticise; but



A STANDARD OF ROSE CAROLINE TESTOUT, THE BEST PINK ROSE.
BEARING FIFTY FLOWERS AND BUDS.

we may venture to consider the faults and the merits of the ordinary standard. If one would avoid those "mop-headed" standards that are not uncommonly seen in gardens and that have done something to bring standards generally into disrepute (from which they are, fortunately, fast recovering), it is necessary to prepare the ground well by deep digging and manuring, to plant in autumn, to prune the shoots hard back in the following spring, and to stake them firmly so that they shall not be loosened by swaying when the wind blows. Then last, but perhaps most important of all, it is necessary to choose the proper varieties.

Let us first see which are the best for an ordinary standard, one that will form only a moderately sized "head," but from which we may expect blooms of good quality. First and foremost stands Caroline Testout; I have seen no rose that makes a better standard of its kind. This variety rarely or never fails the grower, and no one can do wrong in planting it. Général Jacqueminot, Fisher Holmes, La France, Mrs. John Laing, Frau Karl Druschki, Gustav Grunerwald, Madame Abel Chatenay, Madame Hoste, Lady Ashtown, Lady Roberts, Ulrich Brunner, Duke of Edinburgh, Dean Hole, White Maman Cochet, Baroness Rothschild, Mrs. Sharman Crawford, and Viscountess Folkestone—these make a list of eighteen that I believe would be difficult to surpass. Even then one has not nearly exhausted the list of suitable varieties, for are there not Hugh Dickson (whose growth is, however, apt to get rather embarrassing), Augustine Guinoisseau, Dupuy Jamain, Frau Lilla Rautenstrauch, Grand Duc Adolph de Luxembourg, Florence Pemberton, Marjorie and Prince Camille de Rohan. Roses that grow more freely and make larger heads but yield smaller blooms, though more of them, are Gloire de Dijon, William Allen Richardson, La Tosca, Gruss an Teplitz, Bouquet d'Or, Grace Darling, Enchantress, Alister Stella Gray and Marie Van Houtte.

Weeping Standards.—No rose garden is worthy of the name that is without its weeping standard; when in full bloom there is nothing to equal its exquisite display, and I would urge all readers to include at least one in their next order for roses. The vigour with which they grow is enough to endear them to the heart of every gardener, but this is even surpassed by the freedom with which they bloom. Only they who have seen a weeping standard in full beauty can form an impression of its grace, its loveliness, and surpassing

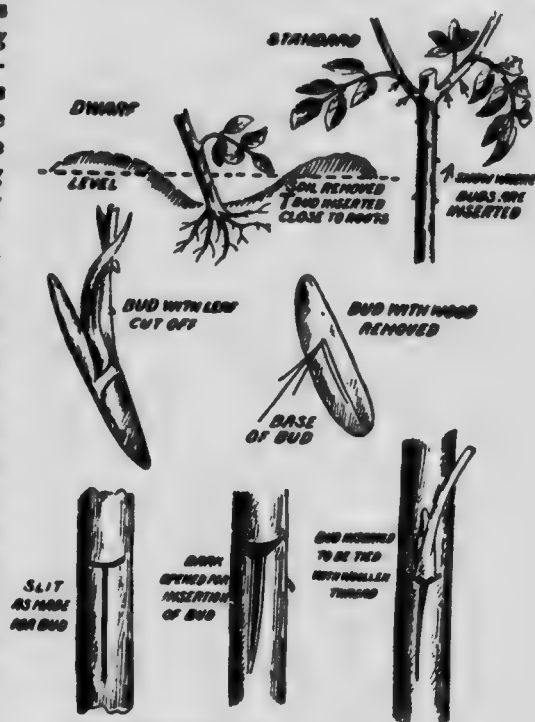
charm, but—I write as though no one had ever seen a weeping standard, and they are now getting fairly common. But of this I am sure: only those who have actually grown them can realise the pleasure they give, and not all those who have seen them possess them in their gardens. The only pruning needed is occasionally to cut out a few of the older growths when the flowers are over. The wichuraiana roses make the best weeping standards, although there are a few others of almost equal merit. Here is a list of a dozen that would be hard to beat:—Dorothy Perkins, White Dorothy, Hiawatha, Elisa Robichon, Alberic Barbier, Paul Transon, Renè André, Jersey Beauty, Félicité Perpétuë, Gardenia, Blush Rambler, and Auguste Barbier, and most of them are wichuraiana sorts.

BUDDING ROSES.—Although amateurs generally prefer to get their roses ready made from the nurseryman, there are many who like to do a little budding on their own account, and this I take as an excuse, if any is needed, for a few notes on the subject. The first thing the would-be "budder" wishes to know is when he should make a start. Not all of us are in the happy position of Dean Hole in this respect for, as he tells us in his delightful "Book about Roses," "I have myself a peculiar but unfailing intimation when it is time to get in my Briars—My Briar man comes to church! He first comes to a morning service on the Sunday. If I make no sign during the week he appears next Sunday at the evening service also. If I remain mute, he comes on week days. I know then that the case is urgent, and that we must come to terms." We are to suppose that the Briar man went to his devotions in November, for this is the month *par excellence* for putting in Briars. Those who wish to bud a few standards should, if they have no "Briar man," search the hedgerows for some likely stems. Is it necessary to point out that they should be straight, strong and nicely rooted and sage green rather than light green in colour? Then we plant them safely and well in deeply dug ground, first cutting back long, thick roots, and topping the stem to the height we wish the standard or half standard to be. If the growths on some stocks are not strong enough to bud the first season, when November comes round again the stocks may be transplanted, so that the following year they shall have plenty of small, fibrous roots and first-rate growths upon which to bud. The opportunity will also be taken to root out all the stocks that have died, and there are pretty sure to be some of these, and to replant in rows 3 feet apart, putting each plant 18 inches from its neighbour. However, the fastidious and practised rose grower plants carefully in well-tilled ground and buds the stocks the summer following planting. And of course the results are invariably satisfactory. If the beginner wishes to bud his own dwarf roses he will be well advised to obtain the stocks from his nurseryman rather than attempt to raise them himself.



WEeping STANDARD OF THE WHITE JAPANESE BRIAR (*ROSA RUGOSA ALBA*).

THE MOST GENERALLY USEFUL STOCK is the Briar, known as the cutting Briar if raised from cuttings; as the seedling Briar, if raised from seeds. The amateur may, if he wishes, sow the seeds or put in cuttings, but the stocks are cheaply bought. They, too, are planted in November. The cutting Briar will be found the most generally satisfactory for Teas and Hybrid Teas, and it may also be used for Hybrid Perpetuals, although for these strong growing roses the Manetti is frequently employed. For roses intended for growing in pots in the greenhouse, the Manetti is largely used. The De la Grifferaie is made use of for climbing Roses, but the best way to grow many of these, and especially the wichuraiana sorts, is on their own roots; in other words, to raise them from cuttings. The amateur cannot go far wrong if he uses the Briar cutting stock for all his roses. Now let us come to the actual process of budding, but before detailing the work (about which, by the by, the inexperienced will learn more from a practical lesson than I can hope to teach him through the written page), let me point out that budding can be practised without having recourse to bought stocks. One may bud worthy roses upon worthless ones; one may have two or three sorts growing on the same tree, if this kind of thing makes appeal.



Showing how Roses are Budded.

THE BEST TIME FOR BUDDING is during the latter half of July and the first part of August, although it is often carried on with success throughout September. The bud is inserted on a side shoot of standard briars, and on the root stem just below the branches of dwarf stocks. The accompanying sketches, given in much detail, will probably explain better than I can in words exactly how the work is done. The points that are to be observed chiefly are these:

The soft bark should part easily from the stem when the knife is exerted to make the T-shaped cut; if it does not, the grower should wait a week or so longer until it does, for upon this, the right condition of the stock, largely depends the success of the work. The bud is preferably taken from a shoot that has bloomed, the way it is cut out is clearly shown in one of the accompanying sketches. Most growers advise that the piece of hard wood immediately behind the actual bud should be removed but, as I know, many do not trouble to do this, for there is always the danger that the base of the bud, the actual life of it, may be pulled out, and then, of course, there can be no subsequent growth. To allow the bud to be inserted the edges of the T-shaped cut are carefully lifted with the haft of the budding knife (a knife with a thin haft made specially for the purpose). Finally the bud is made secure in its fresh home by tying firmly with matting.

A FREQUENT CAUSE OF FAILURE is that of letting the bud get dry between the times of cutting it from its growth and inserting in the stem of the stock. Unless it is at once put in the stock, the bud ought to be kept in water until required for use. In about six weeks the ties may be loosened, and in early spring the growth upon which the bud is inserted is cut back to within a few inches of the place where the bud is. When the bud begins to grow the growth may be shortened close to the bud. Some buds start into growth the same autumn, and occasionally even bear a bloom, but usually they remain dormant throughout the winter. When they do burst into growth the shoots should be cut back to one "eye" in November.

CHAPTER IX

BUSH OR DWARF ROSES

ANY writer might well be appalled at the prospect of having to deal with the question of rose varieties at the present day, and unfortunately I am no exception. There are not only hundreds but thousands of them, and well might one ask, "Where is a beginning to be made?" I certainly make no claim to have grown them all; such a preposterous claim would stand self-condemned. Nor is it necessary that I should have done so in order to pose as an adviser on the subject. I have, however, grown a good many, have planted others in friends' gardens, and have seen still more growing and made notes about them; so that I think I can, at least, tell the reader which roses to avoid, or, at any rate, set in cold print their good and bad points, and leave the amateur to make his own selection. I will put them down as they occur to me, taking care, however, that they are in alphabetical order before they reach the reader:—

ANNA OLIVIER (T.).—A charming Tea rose of only moderate growth, but free and constant blooming. The flowers are of rose and buff shades, and like most of the Teas, have a delicate fragrance.

ARMOSA.—I ask little for this charming old rose beyond an appreciation of its pink loose-petalled flowers, of which the first open in May and the last may often be gathered as a bouquet for the table on Christmas Day. And what further recommendation could a rose bring for those of us who prize the roses of yesterday as well as those of to-day? It is true that its blossoms have never graced the show board and can never hope to do so, but none gives more bounteously to the gardener, and who shall say that a rose is not seen at its best in the garden? There is a pleasant scent hidden within the little shell-like petals, and when one gathers roses, not in ones and twos, but in handfuls, as one may with Armosa, the fragrance is strong enough for most flower lovers. All that one has to do in the way of pruning is to cut away the very weak shoots (none of them are vigorous), and to shorten the others by about half, and the time to prune this, as most other roses, is towards the end of March. Armosa makes only a little bush, but its slender shoots yield a surprising number of blossoms. It is to all intents and purposes a China rose, although classed variously as Hybrid China and Bourbon. I first fell in love with it on seeing it

in Lord Plymouth's gardens at Hewell Grange in Worcestershire, where, planted in hundreds together, its leaves were smothered in blossom. The next season I had a little bed full of it, and have never regretted my purchase.

AUGUSTINE GUINOISSEAU (H.T.).—If it is an indication of some special merit to possess a nickname (and were not all the most popular fellows at school so distinguished?), then the "white La France" is a rose that is not lightly to be passed by. But even without such a valuable asset in its popular name, this rose would, without difficulty, arrest the attention of even the most casual of rose growers. For it blooms freely the summer through, opening with the first and closing only with the last. Its blooms once seen are never forgotten; they are the very last word in untidiness, but the charm that is theirs more than compensates for the want of neatness and order; and is neatness really a thing to be valued in a flower? I am not at all sure that it is, for a flower that has no care for the fine disposal of its petals is commonly one that is not fastidious in other respects and is prodigal of its bloom. Blush, fading to white, is a fair description of the colour. As the growth is not very vigorous, rather close pruning suits it best.

AVOCA.—This is a comparatively new rose that came out with a great flourish of trumpets; but, alas! the noise it made was too loud to last, and I am afraid Avoca has not justified its credentials. At any rate, it is one of the roses on my black list. Its chief recommendation is its brilliant colour, which is undoubtedly very attractive. But I was led to believe that Avoca, as a good Hybrid Tea should do, would bloom in autumn, but never a bloom opens after July is past. It is then, I admit, scarcely surpassed, but against this I have to complain that the flowers are thin, that they are soon over, and that I cannot conscientiously class them as fragrant. There is some scent, it is true, but it is not pronounced. Perhaps I am prejudiced, but I can never forgive it for not flowering again in autumn, when I was so sure it would do so.

BARDOU JOB (H.T.).—My earliest recollections of this rose of unique, or almost unique, colouring, carry me to a fair southern garden on the Mediterranean shores, where it was planted against a south-east fence, and gave freely of its giant, single, velvety, crimson blossoms that are not surpassed for rich colour. It is however, none too hardy, and none too free blooming in this country, and except for the fine colour of its lowers, is scarcely to be recommended for general garden cultivation.

BESSIE BROWN (H.T.).—I am doubtful as to what to say about Bessie Brown, for while one grower will bemoan the inclination that tempted him to plant her, another is equally jubilant in her possession. The large, closely packed blooms that will not open in wet weather are the despair of those who like above all things to see their garden gay; others see so much beauty in the individual rose that they are inclined to overlook many failings in their admiration of one or

two perfect blooms. Perfect of their kind that is, for Bessie is not seen at her best on the plant, but only when plucked and set up in a vase with suitable support. Personally, I have no room for such a rose as this—large, ungainly blooms on weak stems have no attraction for me. I prefer those with fewer petals, but with stems that hold the flower erect. I will, however, say for this rose that if—rare occurrence!—the summer should be fine and sunny, if you prune hard and feed well with fertilisers your reward will be in a few “grand” blooms that will, at any rate, grace the show board right royally, if they make no display in the garden. The flowers are creamy white in colour and—pleasant surprise!—they are fragrant. Not with the scent of some of the old red Hybrid Perpetuals, but still fragrant.

BETTY.—How, even if one wished to do so, could one disparage a rose with such an altogether delightful name as this? Would that such rose names were more common; our gardens would have an added sweetness. How shall I describe the colour of Betty? Lest I might be tempted to soliloquise, let me take the official description as correct—“coppery rose, shaded yellow.” But how little does this convey of the exquisite tints that remind one of nothing so much as the dawn of an early summer day. Betty is a fairly vigorous grower and blooms most freely; scarcely a day passes that one may not gather at least one perfect bud. And to gather the buds of Betty, you need to be up quite early in the morning, for they love to warm themselves in the sunshine with wide open petals. A short life and a merry one seems to be their motto, for, as all rose lovers know, sunshine plays sad havoc with those semi-double roses, with which, alas! Betty must be classed. But in the bud form they are not surpassed for charm. I shall always have a warm corner in my heart for Betty.

BILLARD ET BARRÉ (T.).—This is a Tea rose of lovely deep yellow colouring, and although classed as tender, I have seen it growing freely enough as a bush in the open garden near Exeter. In counties further north, it is best planted against a wall or fence, facing either south or west, and, in fact, owing to its semi-tall growth this is where it is best suited. It blooms none too freely, but a few of its lovely flowers are well worth having, even though they have not much to boast of in the way of shapeliness.

BOULE DE NEIGE (H.N.).—If you are inclined to try this old Hybrid Noisette, or to put it more plainly perhaps, this white bunch-flowered rose, let me recommend *Punch's* immortal advice given in different circumstances, and say, “Don't.” I have not room to detail its faults, but I assure you they far outweigh its merits, and it is a rose that should be expunged from all lists and catalogues.

CAPTAIN HAYWARD (H.P.).—This is quite one of the best of the old garden roses and it is by no means despised by the exhibitor, for often, when really well grown, it is seen in a winning stand. But under ordinary cultivation, Captain Hayward is none too full, though for garden display quite full enough. The light crimson flowers make up

in size what little they may lack in quality. Although classed with the Hybrid Perpetuals (and despite their title these roses only bloom, as a rule, in summer), Captain Hayward is not at all bare of blossom in autumn, though I should certainly not recommend it as a "good autumnal." It is of vigorous growth and is all the better for fairly hard pruning; if treated lightly in this respect the flowers are likely to come too "thin." Its brightly coloured fragrant flowers never show to better advantage than in a dull season, and as we have now come to regard these as a matter of course, need I say more in favour of Captain Hayward as a rose to be grown in every garden?

CAROLINE TESTOUT (H.T.).—There is little or nothing to say about this wonderful rose that has not already been said many times before. Who would imagine that our gardens had only known it since 1890? It seems as though Caroline Testout had been always with us. Its strong, thorny shoots and great pink blooms are seen in every garden that makes any pretence at all to justify its claim to consideration. It has not the exquisite form of Maman Cochet, or the fragrance of La France; in fact, it is wanting in both these qualities. Nevertheless, everyone grows it, and this goes to prove that, providing a rose will grow well and bloom well, most gardeners are prepared to ignore the absence of even such attributes as fragrance and fine shape. Perhaps I ought not to say too much in disparagement of its lack of form, for does it not figure fairly frequently on the show board? There is no rose to surpass this one for massing; it is in bloom all the summer through, and especially fine in July and September. There is no rose that shows its flowers off to better advantage. And as for growing in standard form, there is none so fine, as perhaps the accompanying illustration will serve to show. I have never seen such a fine standard as this, and am fortunate in being able to illustrate it. For this I am indebted to Mr. Tonks, in whose garden near Redditch, it is growing, and to Mr. Dilks, who took the photograph. I am sorry to have to say it, but the Rev. H. B. Biron, one of the most accomplished of amateur rosarians, suggests that the variety is not Caroline Testout, but Climbing Caroline. How dare he? At any rate, until I have evidence to the contrary from Mr. Tonks himself I shall cherish the fond delusion (?) that the rose is Caroline and not one of her satellites!

CATHERINE MERMET (T.).—A rose that is not of much value for growing out of doors, though useful for the greenhouse. The blooms are light rose pink in colour. The growth is not strong.

CHARLES J. GRAHAME (H.T.).—I class this as one of the best crimson Roses for garden display. Its blooms are rather thin, but unfortunately this fault is to be found with so many of the newer roses of rich and beautiful colouring. C. J. Grahame blooms freely from July until the frosts come, and on this account is to be forgiven much. Not that it needs to be apologised for: far from this indeed. Next to Hugh Dickson, I would grow it for a crimson rose in the garden, although it has, of course, no pretensions to an exhibition variety.



AUTUMN ROSES. THE PHOTOGRAPH WAS TAKEN IN LATE SEPTEMBER, AND SHOWS PINK ROSES
(CAROLINE TESTOUT) WITH PRIMROSE DAME VIOLA BENEATH.

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It appears to thrive all the better for rather hard pruning; without this the growths are apt to come rather weak.

CHÂTEAU DE CLOS VOUGEOT (H.T.).—If I had not already exhausted my stock of terms of disparagement, I should have some very unpleasant things to hurl at such a name as this. I had almost said that it is a pity this variety ever left the shores of the land of its birth, but that would be a thousand pities for, despite its unwieldy title, it is one of the best of dark crimson roses. The blooms have not much to boast of in the matter of form, but their fragrance and the velvety sheen on the real dark crimson petals are qualities that do not make a vain appeal. Such choice flowers as these do not come in prodigal profusion, but one can always gather a bloom or two, and a dark crimson rose of this calibre is not only not to be despised, but it is at present to be cherished. What the years may bring none can tell, but it is quite likely that before very long we may be able to discard Château de Clos Vougeot for something better in the rose world. At present, however, it is a rose to grow and to be proud of. What other variety of real dark crimson colour can one conscientiously extol to the same extent? I know of none. Its growth is vigorous and a bush 2 feet high is soon formed if, after the first season, pruning is not too severe.

CLIO (H.P.).—I used to have a fondness for this rose, but I have now discarded it. It grows vigorously, and if the long shoots are pegged down there will be plenty of summer blossom. The blush coloured flowers are large and full, and come in bunches almost as thick together as Peas in a pod.

COMMANDANT FELIX FAURE (H.P.).—A fine dark crimson rose that, alas! blooms in summer only. For some reason or other, perhaps because I had heard its merits so greatly extolled, I expected to be able to gather autumn blooms from the Commandant, and I was more than commonly disappointed. And a rose that disappoints when it first opens in the garden, rarely or never, I think, finds a real place in one's affections. Such is the magic of first impressions. However, it gives no trouble so far as its cultivation is concerned, and as the blooms are fragrant and of a colour that is much appreciated among roses, I shall leave the reader to decide for himself whether or not he will grow this variety. If he elects to do so, he will find that it thrives best when pruned fairly hard.

CORALLINA (T.).—If there is one rose more than another of which it may be said that it is even better in autumn than in spring, Corallina is the variety to claim that distinction. It is not seen in full beauty in hot, dry weather, but the cool, dewy nights and pleasant days of September suit it admirably and show off its uncommon coral colouring to perfection. It is an excellent rose for massing; only then, in fact, is it seen to real advantage, for the individual flowers have no claim to quality as represented by size and form of petal. This rose is now ten years old, yet its claims on the gardener who grows for a free display have not yet received due recognition. It is a willing

rose, and does not need more than a season or two to make a fine 2 feet high bush, especially if not too closely pruned.

COUNTESS OF GOSFORD (H.T.).—Of charming colour, pink and salmon shades. A good rose that grows well, blooms freely and continuously.

DEAN HOLE (H.T.).—This rose came out with a great flourish of trumpets as, named after so eminent a rosarian, it was bound to do. The flowers are of perfect form, long and pointed, and are valued both for garden and exhibition. It makes a splendid standard as well as a dwarf, grows well, and flowers freely both in summer and autumn. Notwithstanding, it has scarcely become very popular—why it is difficult to say—possibly because the colour is not distinct enough. Silvery carmine, shaded salmon, is the description.

DOROTHY PAGE ROBERTS (H.T.).—This is one of the best of the newer semi-double roses; the long buds are of exquisite colouring, pink and copper, but they so very soon become full blown. It flowers freely and constantly.

DUKE OF EDINBURGH (H.P.).—One of the best of the old bright red roses; it grows well and gives fine flowers, and for its full blooms of rich colour is still worth growing, although it is a summer rose only.

EARL OF WARWICK (H.T.).—An excellent garden rose, strong growing, free and constant flowering, although the colour is none too distinct. It belongs to that numerous class in which salmon is the predominating colour.

EDU MEYER (H.T.).—This is a rose of charming colour. It is described as vigorous, although I have never been able to get it to grow with great vigour. However, I value it for the rich colouring of its flowers, copper and pink, which are produced freely and throughout a long season.

FELLENBERG (N.).—Here is a rose to make a hedge of, or to form a group, and to let the plants grow as they will. I have seen lovely masses of it in rough parts of the garden in open spaces between shrubs, where the plants were not touched with the pruning knife, except occasionally to cut out some of the older growths. Its rose-red blossoms, with no pretence to quality, are freely and continuously produced, and those readers who like to leave their roses largely to take care of themselves, and plant in groups or masses could wish for none better suited to their purpose than this.

FISHER HOLMES (H.P.).—Our gardens chiefly lack crimson roses that blossom throughout summer and autumn. There is already a superabundance of pink and salmon-pink varieties. We cannot, therefore at present afford to dispense with the crimson Hybrid Perpetuals, although they yield their chief and almost only harvest of blossom in July. Among the best of these is Fisher Holmes, with large, full crimson-scarlet flowers of good form, that are fragrant. This is a favourite rose with exhibitors, and some exquisite blooms are often to be seen at flower shows. But it is good in the garden



H.T. ROSE DOROTHY PAGE ROBERTS.



AN OLD GARDEN ROSE BARONNE PRÉVOST (H.P.), OF ROSE
RED COLOUR.

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also, and especially when grown as a standard. In this form it flowers very freely, and makes an enchanting display in high summer. It cannot be classed as a good autumnal (how very few of the misnamed Hybrid Perpetuals can!), but one may gather quite a fair number of flowers after the chief yield is over.

FLORENCE EDITH COULTHWAITE (H.T.).—A rose that has made many friends, and will doubtless make many more. The colour shades are cream and pink.

FLORENCE PEMBERTON (H.T.).—A large, heavy rose, not especially attractive, creamy white with blush tinge. It grows vigorously and flowers well.

FRAU KARL DRUSCHKI (H.P.). Everyone knows that this is the finest of all white roses, and that its only defect is want of fragrance. Why, then, should I say much about it? Neither shall I. It would ill become me to deprecate a rose that has given delight to so many. I feel bound, however, to point out that Frau Karl Druschki is scarcely the *beau idéal* of the amateur rose grower, for the reason that it takes up too much room. Before I knew its characteristics I had the ill luck to plant it in a rose bed with other sorts, but, alas! it soon took possession of almost the whole bed, and quickly showed the unfriendly habit which it unfortunately has, when cramped, of smothering its neighbours. One cannot grow Frau Karl Druschki as it should be grown without allowing each plant quite 3 feet square of space. It makes growths 4 or 5 feet long, and these only give the wonderful harvest of blossom of which they are capable when pegged down in March without shortening. If one has room, the best way to grow Frau Karl is to fill a rose bed with it. Then in July there will be a rare mass of blossom, and in August there will be scarcely less. This is one of the best roses for August bloom, and this is a good quality that should not be lost sight of in making a selection of roses that will keep the garden gay the summer through. It is, of course, a simple matter to keep Frau Karl dwarf by hard pruning each spring, and although in this way you get some magnificent blooms, they are comparatively few in number. Those who have an opportunity of planting a large bed with strong-growing roses and with these alone, should take note of the white Frau Karl Druschki, the crimson Hugh Dickson, and the rose-coloured Mrs. Stewart Clark. They are three magnificent roses with vigorous growths and large, richly coloured blooms. They do not give much return the first season, but in the second and successive years they make a brave show. Unhappily, Mrs. Stewart Clark gives no flowers in autumn.

FRAU LILLA RAUTENSTRAUCH (H.T.).—"What's in a name?" Surely a rose with such a name as this deserves to be forthwith cast out and burnt! "A rose by any other name—" But, oh, surely not a name like this! Luckily, however, the name is the worst part of Frau Lilla—but, no, I will not write, or, rather, spell it out again. She has large, full blooms that are of exhibition form and are good to look

upon. The only fault, and it is rather a grave one, is that they droop—they do not stare one in the face as a fine rose should. Still, in spite of this fault, I have no intention of discarding Frau Lilla, for the flowers are fragrant, and they are not here to-day and gone to-morrow as some I shall have to mention. Finally, they are freely produced, and come in autumn as well as in spring. Now the reader knows its qualities and defects, so shall decide for himself whether or not he will grow this rose which, need I say, hails from Germany. It is rather too much to hope that a rose with such a name as this, no matter how beautiful she may be, will do anything towards cementing the *entente cordiale* with our German friends. Frau Lilla is best as a standard or half standard; then the drooping blooms are an advantage rather than otherwise.

GENERAL MACARTHUR (H.T.).—I am never quite sure how to spell these Scotch names, whether you should write Mac or merely Mc, but if THE COMPLETE GARDENER should happen to fall into the hands of readers in Scotland, or Scotch readers out of Scotland, I hope they will be good enough to put me right, so that in a future edition (if the gods are good), I may be correct, and so escape the denouncement of that critical reviewer who, I doubt not, is already spreading his net (though it is but autumn) for such small fry in the shape of misspelt names as may be found at large in spring. Since writing this I am told by our printer (who, need I add, is a Scotchman, for are not all good printers and gardeners credited with being Scotchmen?) that neither Mac nor Mc is correct, but that this particular word is spelt thus—M'! What a wonderful language is this from over the border! And so I leave the reader no wiser than he was before, yet certainly as wise as I. But it was rather of the rose than its name that I set out to write, and whatever mystery there may be about its name, there is certainly none about the rose itself. It is a fine, straightforward sort, that grows vigorously though not so vigorously as to embarrass the grower, and blooms as well as it grows. The flowers are freely produced; they are fragrant; you may gather them without ceasing from June until Christmas (with a little goodwill on the part of the clerk of the weather), and what more can a rose do to please its grower? Yes, this is not a bad record for a rose with a name that one may spell in at least three different ways without being sure that any one of them is correct! It will come as a surprise to those readers who hail from north of the Tweed to learn that this rose with a Scotch name comes from the U.S.A.! Let me conclude by saying that it is one of the very best despite the fact that its flowers are a little "thin," and are apt to fade just as one is thinking how perfect they are. If I could afford to fill a flower bed with it and I were lucky enough to have the necessary space, I would certainly do so, for its bright red, fragrant blooms are more than welcome.

GENERAL SCHABLIKINE (T.).—A Tea rose of moderate growth that will appeal to those who like roses of sunset shades. It flowers



ROSE TEA RAMBLER IN A SUBURBAN GARDEN.

more or less all the summer, but never makes much of a display unless planted thickly, owing to its poor growth, but it blooms freely in autumn.

GLOIRE LYONNAISE (H.T.).—Quite one of the best of the roses for garden display. The blooms are not up to exhibition form, but they are freely produced and make a brave show in the garden. It grows strongly, and for this reason should be put with others recommended for pegging down instead of being hard pruned each spring.

GRACE DARLING.—This is an old rose, and while I have an affection for it and would not care to be without it, I am bound to confess that there are others better. Its blossoms, which are of very attractive and rather uncommon colour—cream, with pronounced pink shading—have not much to boast of in the matter of form, but they come early and stay late. There are at least three crops of bloom; it would be quite correct, I think, to say that from the last week in May until the first week in November one need never be without a bloom of Grace Darling. This is a great recommendation, but perhaps in a rose it does not quite compensate for the absence of sweet scent, and this, I am sorry to say, is Grace Darling's most pronounced failing. The plant is a fine grower, and soon develops into a good-sized bush. I find that it does not need very hard pruning after the first year or two.

GRAND DUC ADOLPHE DE LUXEMBOURG (H.T.).—I count this as one of the best roses for garden display in summer and in autumn. The flowers are large, but they have not much to boast of in the way of form. They are not such as one would care to put on the exhibition table, but they make a rare show in the garden beds and borders. I have gathered splendid blooms late in October. The colour, too, is striking; outside the petals are blush coloured, inside they are deep rose red—two such distinct shades together in the same bloom is unusual.

GUSTAV GRUNERWALD (H.T.)—This is a fine carmine pink rose for the garden either as a dwarf or standard. It grows and flowers well, but its fragrant blooms are not up to exhibition form.

GUSTAVE REGIS (H.T.).—A vigorous variety with very pretty yellow buds and white, or nearly white, flowers.

HARRY KIRK (T.).—This is one of the yellow roses, and so far as my experience of it goes, what I have said with reference to Mme. Ravary is applicable. I scarcely know which I should grow were I restricted to one of these two, but I think I should pin my faith on Mme. Ravary, perhaps because I know her better and have had greater success with her. But for a rose of yellow shade, and Harry Kirk is the yellower of the two, the reader may very well choose either. While Mme. Ravary is classed as a Hybrid Tea and the other as a Tea, there is little to choose between them so far as hardiness is concerned.

HORACE VERNET (H.P.).—One of the best of all dark roses so far as its colour and form are concerned. It is a rose in which the

exhibit for delights, for a well-grown bloom is sure to take the judge's eye, and if he knows the difficulty of obtaining it he will give it maximum points. Its intense scarlet-crimson flowers are not to be had in perfection without some trouble—more than the ordinary rose needs—and they only come in summer, so judge whether or not Horace Vernet is a rose for your garden.

HUGH DICKSON (H.P.).—This is the finest crimson rose I have grown. The blooms are full, of such size and colour as delight the grower for exhibition. But it is by no means a rose for the exhibitor only; it is one of the best of all roses for garden display. It makes vigorous growth; plants in my garden now have shoots 6 or 8 feet long. Thus it is not a rose to plant in an ordinary bed along with others of moderate or weak growth; these would have no chance at all. No, Hugh Dickson needs plenty of room, and must either be pegged down or else put out against a wall or fence. Its strong shoots are not to be pruned hard back each spring; they are to be preserved at full length so that each bud may yield its precious burden of blossom. The only pruning that is necessary is occasionally to cut out one or two of the oldest shoots when their blossoming capacity is obviously over. The amateur may possibly be disappointed with this fine rose in that it gives few flowers the first season after planting, but I ask him to possess his gardening soul in patience and watch how it grows and assure himself that each of those shoots is good for a number of exquisite roses the next season. It is only the first year that there is little bloom; each succeeding season there will be flowers and to spare. What more can I say in praise of the best crimson rose, except that its flowers are deliciously fragrant, like most dark red roses, and that it blooms in autumn as well as in summer? Like those of my fair readers who append postscripts to their letters, I have, perhaps unconsciously, left the best news until the last.

IRISH ELEGANCE (H.T.).—A very beautiful single-flowered rose, much used at flower shows for table decoration on account of its charming colour—apricot touched with scarlet. Naturally the individual flowers do not last long, but the plants flower freely and for a long time.

JULIET (H. Briar).—I feel that I am not justified in including this rose in my list, for my actual acquaintance with it at present extends only to an order for one plant, which, by the by, is costing me half a guinea, so I feel that I am justified in making a little "copy" out of it! I have reserved a place against a fence facing west for its accommodation, for is it not a Hybrid Briar that grows 3 or 4 feet long in a season, or even longer, and if the growths are fastened to the fence and well spread out, will they not give freely of their really wonderful blossoms? These are large and full, and show the most exquisite colour association that is found in any rose. Inside, the petals are of old gold colouring, outside they are rich, glowing, carmine rose, and when the petals curl back slightly at the tips,—what a sight, fit even

for the gods! Captain Hayward and the golden yellow briar Soleil d'Or are the parents of Juliet—a lovely rose, finely named.

KAISERIN AUGUSTA VICTORIA (H.T.).—Those who are on the look out for a dainty cream white rose that is not too fastidious should grow this variety. It is valued for exhibition on account of its perfect shape, and for garden display for its fairly free flowering habit.

KILLARNEY (H.T.).—The one great fault of this rose is that it is sadly addicted to mildew and for this reason has not become so popular as it otherwise undoubtedly would have done. The flowers are of excellent shape, of lovely clear pink colouring, and are freely produced. There is a new white variety called White Killarney.

LADY BATTERSEA (H.T.).—It behoves one to be careful in dealing with a rose of such aristocratic title, although were I free to vent my criticism I should perhaps leave the reader with a clear appreciation of its demerits. One of its claims to consideration is that it is one of the earliest to bloom. In my garden the race is generally between this and Grace Darling; sometimes one wins, sometimes the other. Lady Battersea is essentially a garden rose, the long buds are delightful, but they are buds for so short a time. They are so anxious to sun themselves in the welcome sunshine that usually a day sees the best and the worst of them. The colour is good—a clear red. The plant is of moderate vigour and needs fairly close pruning, otherwise the growth is inclined to dwindle. I would say of Lady Battersea that you should plant it sparingly.

LADY ROBERTS (H.T.).—This rose, of beautiful orange-apricot colour, has dainty buds and makes an excellent half standard. It is a fine rose for the greenhouse when grown in pots. Unfortunately, the colour is not always to be relied upon.

LA FRANCE (H.T.).—How shall I adequately sing the praises of sweet La France, that seems to possess all the merits that a rose should possess? It is grown for garden display and has few rivals there; it is not easily eclipsed on the exhibition table, it is fragrant, grows well, and blooms in season and out of season, if roses can now be said to have a season. What more can I add than that to grow La France is at once to fall in love with it? It is a rose that least of all stands in need of praise. Silvery rose with lilac shading is the accepted description of the colour of its flowers, and for want of a better we may leave it at that. La France makes a splendid standard and is scarcely excelled for the amateur's greenhouse.

LA TOSCA (H.T.).—Here is a rose that makes little claim to beauty of form, but rather delights to smother itself in blossom from early summer until autumn. A rose, then, for the garden, and especially for the beginner, since it grows like the proverbial weed. I have, perhaps, an especial fondness for this variety because it is one of those that is readily increased from cuttings by the method described on another page. And the surest way for a rose to reach the grower's

heart is by showing him that it likes his method of treatment. La Tosca soon reaches a height of 2 or 3 feet, and after the first year or two light pruning suits it best. The illustration, which is from a photograph taken late in September, shows the freedom with which La Tosca grows and blooms. It is essentially a rose for the centre of the bed; none fills that position better. I had almost forgotten to give the colour of the flowers, which are best described perhaps as blush.

LE PROGRÈS (H.T.).—One of the best of the yellow roses, but none too vigorous, though much better in some gardens than in others. It is, however, well worth trying on account of its none too common colour.

LIBERTY and RICHMOND (H.T.).—If there were no such rose as Richmond, I would say, "By all means grow Liberty," but as there is Richmond; well, my advice is, grow only one of them. Liberty has blooms of richer red than Richmond, but they do not come in such profusion, for the latter is a stronger grower, and is almost as fine in autumn as in spring. Liberty is a very good second best to Richmond, and I am sorry not to be able to praise it more highly. I must, however, give it its due as a buttonhole rose, for there it easily holds its own. I do not think there is a finer garden rose of its shade of colour—bright red—than Richmond. It is a variety that every reader of *THE COMPLETE GARDENER* should grow.

L'IDÉAL (N.).—One of the roses having "sunset" coloured blossoms. It is not very hardy, and the best place for it on this account is a warm border at the foot of a south wall. Greatly in demand for buttonholes and for table decoration.

LYON ROSE (H.T.).—A rose among roses! Such a rose that I would grow it even for one bloom a year, and I am not sure that it will ever give many of its wonderful flowers. My short experience of it is that a few exquisite blooms may be expected in June. It is perfect in form and of fascinating colour shades, of orange—scarcely to be described except by comparing them with the glow; that in autumn you may expect a few more flowers that are not nearly so perfect in form as the summer blooms, and lack their glorious colouring. I do not think that many of us have grown the Lyon Rose long enough to be able to form a just estimate of its good and bad qualities, for it was sold for the first time in 1907. It grows strongly, and I think is most likely to give satisfaction when closely pruned.

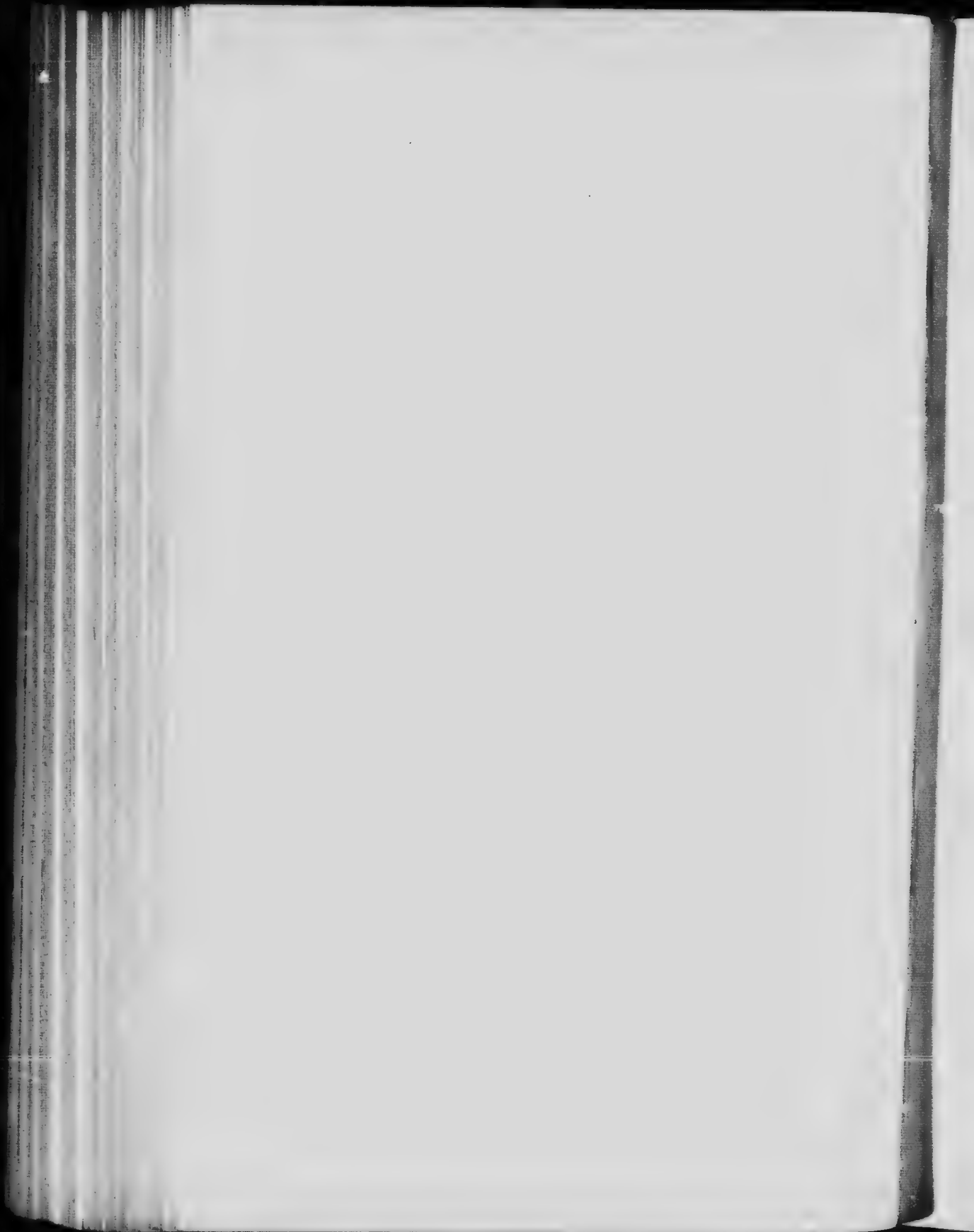
MADAME ABEL CHATENAY (H.T.).—What shall one say of a rose that is admitted to be the most indispensable of all? No rose garden can do itself justice unless it contains a few plants of Madame Abel Chatenay. And here, might I say, that the way to have your rose garden looking its very best in due season is not to plant fifty or a hundred roses in fifty or a hundred varieties, but to get, say, half a dozen of each. Undoubtedly Mme. Chatenay is one of which a dozen



ROSE LA TOSCA IN THE MONTH OF SEPTEMBER.



RAMBLING ROSE FLORA (PINK).



might be chosen in full hope of a rich reward in long continued and free blooming. For Mme. Chatenay is an excellent rose for autumn. How shall I best describe its colour? Rose cream is the predominating shade, but it is deeply suffused with salmon. There are few roses more exquisite in bud form than this, and more often than not, even in the keenest competition, it carries off the chief prizes for dinner-table decoration. Like most other roses, if closely pruned, it gives fewer flowers of high quality, while if lightly pruned after the first year or two—and this is my practice—it is one of the finest of all for garden display.

MADAME ANTOINE MARI (T.).—The merits of this delightful rose are only now becoming known. The rose and white flowers are freely produced by plants that grow well. It is one that can be strongly recommended both for summer and autumn bloom.

MADAME HOSTE (T.).—This is quite one of the best Teas for garden display. I have several plants of it. The blooms are pale yellow coloured. It is good in autumn.

MADAME ISAAC PEREIRE (B.).—A vigorous old Bourbon rose that soon makes a big bush that bears large fragrant flowers both in summer and in autumn. It thrives with a minimum of care, and needs little pruning, merely the removal of an old growth occasionally.

MADAME JEAN DUPUY (T.).—This is a rose with beautifully tinted flowers, rose and yellow shades. The buds are charming. It is satisfactory in the garden, and is one that everyone ought to try.

MADAME JULES GRAVEREAUX (T.).—A rose that everyone ought certainly *not* to try, although by members of the National Rose Society not long ago it was voted the best Tea. It grows vigorously, but its flowers, how few! It may be treated as a pillar rose, growing some 5 feet high, or if hard pruned each year and well fed, a few fine blooms fit for show will be obtained. A rose not for the many, but for the few.

MME. JULES GROLEZ (H.T.).—A pretty little rose of distinct light rose colour and dainty form. Of only moderately strong growth; free flowering.

MADAME MELANIE SOUPERT (T.).—This Tea rose of lovely colour shades caused quite a sensation when first exhibited at the National Rose Society's Show a few years ago. Its bewitching colouring captivated everyone, and I proved no exception. I duly made a note of it and added it to my collection the following autumn. And am I pleased with it? Does it quite realise my expectations, and in the garden show that wonderful colouring that so distinguished it when exhibited? Well, I am not disappointed, neither have my expectations been quite fulfilled. Let me make this paradox plain. "Deep yellow; shaded peach" is the entrancing official description of this rose, but my experience invites me to qualify this by substituting pale yellow for deep yellow. And, indeed, I find this to be the case with many of the roses of yellow shades; they all seem to come much lighter in my garden than they do on the show board. Possibly it is because I do not shade them sufficiently, or give them enough fertiliser, or prune

them hard enough, or, to put it bluntly, because I do not grow them to show as a showman would, but only for garden display. I do not yet know whether the new really bright yellow Rayon d'Or, which, as shown at the Rose Show in 1910, was much brighter than any of the other so-called yellows, will come through the garden trial with flying colours, but few, if any, of the yellow roses have lived up to the reputation gained in the show tent. I am in danger of forgetting all about Mme. Mélanie Soupert, so let me return to this captivating rose by saying that you may consider yourself fortunate to get a few blooms of the real colouring. There will be a fair number of others of paler shade, for although Mme. Soupert is not to be classed among either the strong growing or the free blooming roses, neither is she to be classed among those that disappoint in these respects. I should say that she is of moderate growth and only fairly free blooming but a good autumnal, and, above all, a rose that, despite its defects, is one that we can hardly do without.

MADAME RAVARY (H.T.).—This is one of the best of the so-called yellow roses. I say so-called advisedly, for in thinking of a yellow rose one naturally has in mind the colour of Maréchal Niel, and to compare the colour of Madame Ravary with that of the king of yellow roses, as Maréchal Niel may lay claim to be, is at once to be disappointed. The flowers are of pale apricot colouring, and in the bud are a deeper shade—very beautiful indeed. They soon get full blown, and then it is merely a matter of hours before they fade, although in dull weather they close up again towards evening and regain some of their youthful charm. Mme. Ravary thrives under hard pruning, and if the rather weak growths are left too long it is apt to languish.

MAMAN COCHET and WHITE MAMAN COCHET (T.).—The white variety is the better of the two for garden display, although Maman Cochet herself is not to be despised for this purpose. There are, however, better Teas for the garden. Need I add that Maman Cochet is the favourite rose with exhibitors on account of its perfect shape, and that the blooms are shades of rose.

MARGARET DICKSON (H.P.).—Although as I have, I think, recorded elsewhere that enthusiastic rosarian, the Rev. David Williamson, of Kirkmaiden, possesses a Margaret Dickson that has reached a height of 20 feet or thereabouts and is able to gather an odd bloom or two on Christmas Day, I do not cherish very pleasant memories of Margaret Dickson. There is, to be sure, nothing to complain of in the matter of vigorous growth, for she makes a 3 feet high bush without the least effort. But who, nowadays, would grow a rose that gives of its little all in July, and has the effrontery to thrust its roseless shoots at you for the rest of the season; in fact, until July comes round again? I, at least, will not, and so Margaret no longer cumbers the ground that is so precious in my neighbourhood. She would have added fuel to the garden fire but for the timely intervention of a less fastidious gardening friend. There is something to be said for its large flat



ROSE DOROTHY PERKINS GROWN AS A FREE BUSH.

blush white blooms that are held stiff and straight on fine, strong stems. So what shall I say? I have it! No rose is better able to dispense with a stake!

MARIE VAN HOUTTE (T.).—This favourite rose has been grown in English gardens for forty years, but it is doubtful whether it is now as popular as it once was. I have never seen it better than when grown at the foot of a warm wall in a well drained border. My experience of it is that it is not too reliable in the open garden. In such a position as I have described, it blooms early and late, and its lovely lemon rose-tinted flowers are freely produced.

MARJORIE (H.T.).—Another rose that, if only on account of its name, it would be shameless to decry. But, indeed, it is a rose that one may write of with genuine pleasure, if not with high praise. It is only of moderate growth, but it blooms freely, and its pink-white flowers make a brave show in the beds and borders. It is one of those that is called a good "bedding" rose for the reason that in the mass its long continued and free blooming qualities ensure a first-rate display. Fairly hard pruning is necessary, as with all varieties of only moderate growth.

MARQUISE DE SALISBURY (H.T.).—This rose may be classed with Gruss an Teplitz, for its habit and flowers are much the same. It does not grow so high, however. It is very good in autumn, and needs very light pruning. The bright crimson flowers have no pretence to form, and it is used only for the sake of its display in the garden.

MILDRED GRANT (H.T.).—A variety with large, heavy blooms that are of value to the exhibitor, but little or no use in the garden. White with light rose tint describes the colour of the flowers.

MRS. AARON WARD (H.T.).—This is a rose I am going to discard because she never even approaches the catalogue description so far as colour is concerned, at any rate in my garden under ordinary cultivation. "Indian yellow, edge of petals white." Alas! not only are the edges of the petals white but the white takes the place of the Indian yellow almost entirely, and I have grown an Indian yellow rose only to find that it is a white one. What a multitude of sins does "Indian yellow" cover! So far as growth is concerned Mrs. Ward acquits herself well and the buds come freely enough. I say buds advisedly, for in our rainy summers many of them get no farther than the bud stage, the petals stick together, and the last state of this rose is much worse than the first. The colour is unreliable.

MRS. EDWARD MAWLEY (T.).—A rose for the exhibitor, with large, finely formed flowers of carmine pink colouring.

MRS. G. W. KERSHAW (H.T.).—This is one of the new roses and the name has an unfamiliar sound, but it will doubtless soon become widely known. It reminds me a good deal of La France, but it is of more vigorous growth and the blooms are of finer form; they are long and pointed, and are such as delight the exhibitor's heart. And, not least of all its merits, they are scented. Can such a rose—and I do

not think I have exaggerated its good qualities—long remain an unknown quantity? I am sure not, for just as bad roses have a convenient habit of retreating to the oblivion whence they came, so, too, the good ones are bound to come to the top. Make a note, then, of Mrs. G. W. Kershaw, and underline it so that it may find a place in your next rose order. It grows in an orderly fashion, yet with zest; that is to say, it is of neat habit, and not given to straggling. Fairly hard pruning ensures the best blooms.

MRS. JOHN LAING (H.P.).—The real *connoisseur* in roses might have much to say in disparagement of the form of the blooms of this, one of the chief of the old garden roses, for are they not more or less flat and cup shaped, possessing none of the exquisite contour of, say, Maman Cochet, the rose of long pointed blossoms? Still, Mrs. Laing rose is fragrant and the flowers are of lovely rich pink colouring, a shade that is not quite possessed by any other rose. Pity it is that this variety belongs to that ill-named class, the Hybrid Perpetuals, which are the reverse of perpetual flowering, for does not July see the best and the worst of them, the first and the last? It makes an excellent standard, which is more than can be said for many roses. Its flowers are large and showy, and above all, as I have said, they are fragrant. So there are, without doubt, many good reasons why one should grow this old rose.

MRS. SOPHIE NEATE (H.T.).—This is a rose that is not described in the Rose Society's official catalogue and, in fact, is not very generally known. It is comparatively new and, I consider, unworthily neglected. As with so many of the newer roses, the colour is not easy to describe, but the chief shades are rose and salmon. The bud is exquisite, and the open flower is scarcely less so. The flowers are freely produced both in summer and autumn, but I have not noticed any pronounced fragrance about them. It is a rose that I would not willingly be without. I have had plants of this variety for several years now, and never have they disappointed me. Here, then, is a rose that should suit any and every garden, for I give my roses only quite ordinary treatment, such as I endeavoured to outline early in this chapter. I believe any reader of *THE COMPLETE GARDENER* may succeed where I have done so if he or she will but follow the simple directions laid down. Success with roses, as with all other phases of plant-growing, depends largely upon the care with which one pursues one's hobby. There is, however, this reservation, that the amateur will probably succeed much better than he expected to do if whatever is done in the matters of soil preparation and planting is done well. He who has the soil well dug and uses no manure is likely to meet with greater success than the gardener who relies upon manure to do that which should have been done by the spade.

MRS. THEODORE ROOSEVELT (H.T.).—An excellent rose both for garden and exhibition, with handsome flesh pink flowers. It is of vigorous growth, and may be recommended to the beginner.

MRS. W. J. GRANT (H.T.).—I am surprised to find that this rose has been grown in gardens only since 1895, for it is quite familiar even to the most inexperienced of rose growers, and in name, at any rate, is popular. I find it good in autumn, and then gather a few fine rose-pink blooms. It is a weak grower and never seems to develop into a decent plant, consequently most blooms are disappointing, although they are produced pretty freely. Climbing Mrs. Grant is more disappointing still, for you never know when she is going to climb. You may buy half a dozen plants and find that while five of them will make a tremendous effort and reach the magnificent height of 2 or 3 feet, the sixth will reach half way up your house if it has the opportunity. But it may be one's ill-luck to buy the five "non-climbers" first, so what is the use of a rose like this? I have one of the sulky sort, and after trying it in various positions, I am about to put it on the garden fire, where I have no doubt it will burn well enough and will, at least, provide me with a small heap of wood ashes, that I may apply to those more worthy of my care. I can, of course only give my own experience of it, but I have grown it for several years, and planted and tended it in friends' gardens, so that if it had good points I feel sure I should have noticed them.

PEACE (T.).—A very pretty little Tea rose with pale yellow blooms. It is altogether a dainty rose, and flowers especially well in autumn in common with others of its class.

PHARISAER (H.T.).—Altogether a fine rose, and particularly valuable in the garden. It grows well, and its large, long, pointed blooms of rose white colouring are always admired.

PRINCE DE BULGARIE (H.T.).—Another excellent rose for the beginner. There is no difficulty in getting it to grow, and it blooms very freely. Of bright salmon pink colour.

QUEEN OF SPAIN (H.T.).—This, I think, is a rose that does not justify the distinguished name that has been given it. I always think it is a pity when a rose is inaptly named, and I am afraid this variety is a case in point. It may conveniently be classed with Bessie Brown, for it is similar in several respects. It has large, full, heavy blooms that are not freely produced and that do not open at all in wet weather. It is a good rose for the exhibitor, but worthless for garden display. It has, however, one advantage over Bessie Brown, for whereas the flowers of that rose are on thin stalks and droop before they are open, those of Queen of Spain are held on stout stalks, and look one full in the face. The colour is cream, with pale rose flush.

SOUVENIR DE MARIE DE ZAYAS (H.T.).—Who was, I wonder, Marie de Zayas? If she holds an honoured name in French history, of which I confess having forgotten almost if not quite all I ever learnt, then I crave pardon for the display of such colossal ignorance. If she is merely the favourite sister of some French grower, then I ask: "Why, oh! why not have called her just plain Marie?" But despite

her cumbrous name, Marie (and all the rest of it) is a very charming rose, and I would advise all readers to add this variety to their collections. It is an easy matter to call her for short "Marie," although when ordering from the nurseryman it would be advisable to give the full style and title, for there are others whose name begins (but, unluckily, does not end!) with Marie. This variety is of particularly neat growth, and the leaves have also an unusual attraction, or at least they appear to me to have, in that they are glaucous green rather than just plain green. The flowers are of bright carmine red colour and, in company with the leaves, form a charming picture. When I say that the blooms are fragrant and that there is no other rose of quite the same colouring, why, then I am sure I have secured a warm place for Marie in the hearts of all my readers.

SOUVENIR DE PIERRE NOTTING (T.).—Here is another yellowy white rose masquerading as a yellow one. "Apricot yellow, shaded orange," is its official colour description, but if any reader is able to gather blooms of this colour from the garden without having recourse to shading or other artificial treatment, I should be glad to know how it is done. It is true that the buds are highly coloured, but I doubt if even they would justify the description that I have quoted, for how long do the flowers remain in bud form? Scarcely long enough for one to appreciate their beauty, and before they are full blown the yellow has become white. I have gathered almost pure white blooms from this "apricot yellow" rose, and I can only come to the conclusion that this is another of the yellow roses that need special treatment to ensure the wonderful colouring which they can be made to give, but which is not to be had with ordinary garden cultivation such as ensures excellent results with many other sorts. I wonder if there are good and bad forms of other yellow roses, as there are undoubtedly of that old favourite, William Allen Richardson? It is quite possible. At any rate, so far as my experience goes, they are not to be relied upon for the garden, and I am afraid disappointment is in store for those who expect such intense colouring as distinguishes them at flower shows.

VICTOR HUGO (H.P.).—The several faults of this rose may well be overlooked in view of its pretty well unique colouring—brilliant crimson with darker crimson shading. There is no other quite so rich, and none who see it can withhold their admiration. It is a Hybrid Perpetual; in other words, it blooms in July, and scarcely, if at all, afterwards. It is not of vigorous growth, but is, fortunately, fragrant. It needs to be closely pruned, or the growths are so weak as to be unable to bear good blooms.

VISCOUNTESS FOLKESTONE (H.T.).—This is one of the best of all roses for the garden; its creamy flowers are fragrant, they are freely produced, both in summer and in autumn, and the plant grows well. It is quite one of the best roses for beginners, and none should dispense with it.



OLD-WORLD ROSES IN A GLOUCESTERSHIRE GARDEN. THE THORNLESS ROSE (ZÉPHÉRIN DROUHIN)
IS SEEN ON THE RIGHT.



WARRIOR (H.T.).—A good red bedding rose, one that grows without difficulty and blooms freely both in summer and in autumn.

WILLIAM SHEAN (H.T.).—There is only one thing to be said in favour of this rose, so far as its value in the garden is concerned, and that is, its blooms are quite the largest of the Hybrid Teas, and probably of the Hybrid Perpetuals; although being of different shape, they are scarcely to be compared with the Hybrid Perpetual roses. William Shean has very long, pointed flowers, and from an exhibitor's point of view I should imagine they are an acquisition. But, oh! what a failure in the garden exposed not only to all the winds that blow but, also, to all the rains that fall. I have grown William Shean for two seasons, and have not yet been able to gather one fair bloom. The colour is pink, but it is scarcely an attractive pink, and I make bold to say that if it did not possess the doubtful merit of large size, William Shean would never have been heard of at all. The blooms are altogether too heavy for the stalks that hold them, and with what result? Need I say that they hang their heads?

ZÉPHIRINE DROUHIN (Bourbon).—This is the old thornless rose that may often be seen in country cottage gardens. I am happy in being able to show a photograph of it growing in a border in Gloucestershire. It was very beautiful when, in early July last year, I chanced to see it, so beautiful indeed that there and then I took its portrait. The flowers are a charming shade of rose pink, very bright and cheery. They are not much to boast of in the way of form, but the fragrance, ah! that is something precious, for the fragrance of the thornless rose is scarcely surpassed by that of any other. It makes quite a fair sized bush. It thrives well upon a wall, and does not seem very particular as to the aspect allotted to it. I have it upon a fence facing east. It is chiefly a summer-flowering rose, but gives many later flowers also.

MILDEW PROOF ROSES.—One great fault of modern roses is their tendency to mildew. Many of the highly bred novelties have this failing in a very remarkable degree, and often their beauty is sadly marred. If raisers make a point of using as seed and pollen parents such roses as are immune from mildew, they will confer a great benefit upon the rose-loving public, although the terrors of mildew need appal no one in these days of preventive sprays. A timely application of Jeyes' Cyllin Soft Soap, V. 2K Fluid, or Mo-Effic will keep the disease in abeyance, especially if persevered with throughout the summer. The following varieties are practically immune from mildew:—

Tea Scented.—Madame A. Mari, G. Nabonnand, Peace, Corallina, Sulphurea, Marie d'Orléans, Mrs. A. Westmacott, Madame Jean Dupuy, Anna Olivier, Lady Roberts, Madame Hoste, Dr. Felix Guyon, Papa Gontier, Rainbow, Mrs. B. R. Cant, Comtesse F. Hamilton, General Schablikine, Hugo Roller, Madame C. Soupert, Souvenir de Pierre Notting.

Hybrid Teas.—Antoine Rivoire, Laurent Carle, Rhea Reid.

Hybrid Perpetuals.—Mrs. George Dickson, Mrs. Rumsey.

China or Bengal.—Comtesse de Cayla, Queen Mab, Arethusia, Common Pink, Fellenberg.

Dwarf Polyantha.—Perle d'Or, Petit Constant, K. Zeimet, Perle des Rouges, Cécile Brunner, Marie Pavic.

Rugosa.—Rubra, Alba, Blanche Double de Coubert, Rose à parfum de l'Hay, Carmen.

Pernetiana.—Entente Cordiale, Soleil d'Or.

Climbing Polyantha.—Débutante, American Pillar, Bagalette, Veilchenblau, Blush Rambler, Tausendschon, Electra, Trier.

Wichuraiana.—Wichuraiana alba, Leontine Gervais, Hiawatha, E. Proust, Gardenia, Joseph Billard, Paul Transon, René André. All the Penzance Briars. A collection of roses formed from the above varieties would be virtually mildew proof and would contain many of the best.

BEAUTIFUL ROSES THAT DO NOT DROOP.—Many roses lose much of their value as decorative plants by the bad habit their blossoms have of drooping. This is a list of a few Hybrid Teas that carry their blooms erect. There are no doubt others, and there are also a few among the true Teas, but the list is fairly representative for all purposes. Their names are:—Alberto N. Calumet, André Gamon, Antoine Rivoire, Arthur R. Goodwin, Avoca, Betty, Captain Christy, Cardinal, Caroline Testout, Charles J. Grahame, Claudius, Countess of Derby, Countess of Ilchester, Dean Hole, Dorothy Page Roberts, Dr. J. Campbell Hall, Dr. O'Donel Browne, Ecarlate, Elizabeth Barnes, Entente Cordiale, Farben Konigin, Florence E. Coulthwaite, Frau Ernst Borsig, F. R. Patzer, Frau Oberhofgartner Singer, Frau Peter Lambert, Friedrich Harms, Gen. MacArthur, Geo. C. Waud, Gloire Lyonnaise, Gustav Grunerwald, Gustave Regis, Harry Kirk, His Majesty, H. Armitage Moore, Jacques Vincent, Jonkheer J. L. Mock, Kaiserin Augusta Victoria, Killarney, Konigin Carola, Kronprinzessin Cecilie, Lady Battersea, Lady Faire, La Tosca, Laurent Carle, Liberty, Mme. Abel Chatenay, Mme. E. Bouillet, Mme. Jules Grolez, Mme. Léon Pain, Mme. Maurice de Luze, Mme. Mélanie Soupert, Mme. P. Euler, Mme. Pernet Ducher, Mme. Ravary, Mme. Segond Weber, Marchioness of Waterford, Marquise Litta, Margaret, Marquise de Sinety, Miss Cynthia Forde, Mrs. Aaron Ward, Mrs. Alfred Tate, Mrs. David Jardine, Mrs. E. J. Holland, Mrs. Walter Easlea, Mrs. W. Christie Miller, Mrs. P. H. Coots, Mrs. W. J. Grant, Mrs. E. G. Hill, Mrs. D. McKee, Mrs. T. Roosevelt, Mrs. Peter Blair, Paul Lédé, Pharisaer, Prince de Bulgarie, Queen of Spain, Reliance, Richmond, Triumph, Walter Speed, White Killarney, White Lady, Yvonne Vacherot.

It is not to be assumed that this list exhausts all the varieties that carry their blooms erect, but it is a fairly representative selection. There are many among the Hybrid Perpetuals such as Mrs. John



A GATHERING OF GARDEN ROSES.

Laing, Captain Hayward, Merveille de Lyon, Victor Hugo, etc., but these are generally known, and it would serve no useful purpose to extend the list.

SOME NEW ROSES

There is always a danger of giving a hasty judgment where new roses are concerned. Such judgment may either be favourable or adverse, and it is only when one has grown the varieties for several seasons that a fair estimate of their value can be gained. These notes endeavour to give a faithful, if brief, description of each variety. They are arranged in alphabetical order:—

ALBATROSS (H.T.).—A fine large flower, ivory white in colour. Does not stand wet well. In a hot season is good. Exhibition variety. Growth only moderate.

ARTHUR R. GOODWIN (H.T.).—A vigorous grower with splendid shining foliage. Colour, coppery orange passing to salmon pink. Flowers flat, but freely produced. A garden rose only, but one of the best.

CLAUDIUS (H.T.).—More like an H.P. Good for show and garden. Colour, glowing rose. Very sweet. A useful rose, but of not uncommon colour.

COMMANDER JULES GRAVEREAUX (H.P.).—A fine stately bloom with grand petals. A cross between Frau Karl Druschki and Liberty; really a red Druschki. Very promising but rather thin.

COMTESSE IGY HARDEGG (H.T.).—A rose of "Mrs. W. J. Grant growth." A fine show flower of vivid carmine colour. Useless in the garden.

DR. O'DONEL BROWNE (H.T.).—Nearer H.P. than H.T. Strong growth, free flowering, colour not very taking, carmine rose. The variety possesses form and substance, also strong attar of rose fragrance, and will be useful for show and garden. Will grow near towns and cities.

DUCHESS OF WELLINGTON (H.T.).—A wonderful colour, and a rose with large petals. A sort of saffron yellow Killarney, but petals even larger than that well-known sort. Will be very fine in a cool season, as flowers are none too full. Grows well.

ENTENTE CORDIALE (H.T.).—A rose with Chatenay growth and fragrance, and of pale yellow colouring. Grand for exhibition and for garden, also for pot culture. Mildew proof.

ETHEL MALCOLM (H.T.).—May be described as a white Mrs. W. J. Grant. The flower is very large. Such a rose with a growth like Caroline Testout must become a favourite.

F. R. PATZER (H.T.).—A good addition to the cream colours; a rose that grows well and opens well.

FRIEDRICHSRUHE (H.T.).—Of even deeper colour than Prince C. de Rohan. The shape is faulty, but worth growing for its colour. Flowers freely, but the blooms droop.

GEORGE C. WAUD (H.T.).—Unique, orange vermillion colour. Very beautiful and a good grower. Should be in every garden. Rather bad for mildew, but indispensable.

GRACE MOLYNEUX (H.T.).—A good reliable rose of creamy apricot shades with pink sheen on reverse of petals. Very free flowering.

HIS MAJESTY (H.T.).—Large flower of fine form, and early in the season glowing crimson colour. The later flowers are magenta crimson and rather thin. Somehow this rose has disappointed a good many growers, although it has been well exhibited, chiefly by nurserymen from maiden plants.

HUGO ROLLER (T.).—A delightful rose of unique colouring, cream richly shaded with crimson rose. Neat habit, erect growing, like a Hybrid Tea in this respect.

JESSIE (Dwarf Polyantha).—A lovely rich rosy crimson-coloured Polyantha rose, splendid for bedding, or edging or for pot culture.

JONKHEER J. L. MOCK (H.T.).—A rose of remarkable colouring, one that will supersede *Farben Königin*, which it resembles in many respects. Grand for pot culture in strong heat. Carmine pink.

LADY ALICE STANLEY (H.T.).—A rose something like *Joseph Lowe*, but richer in colour and of better growth. We are having far too many novelties of pink colouring; they too closely resemble each other, but this rose is perfectly distinct and good.

LADY HILLINGDON (T.).—Rich canary yellow, long pointed buds, rather thin, but a good rose, especially for the heated greenhouse.

LADY PIRRIE (H.T.).—Another rose of wonderful colouring, quite distinct, deep coppery salmon red on outside of petals, inside apricot. Excellent for garden, perhaps rather thin. These wonderful new colours in roses are often accompanied by few petalled flowers, but as a rule their buds are of rare beauty.

LADY URSULA (H.T.).—A flesh pink rose that will be much grown. It is a fine full flower, good enough for exhibition and a splendid grower and free bloomer for the garden.

LIEUTENANT CHAURE (H.T.).—Growers of forced flowers should plant this sort extensively. It will possibly surpass *Richmond*. It has a lovely long bud, and will be a grand rose outdoors, especially in a cool season.

MADAME R. SMITH (H.T.).—An American rose of great promise; in fact, it has already made for itself a great reputation. Of the *Maman Cochet* type, the flowers open more perfectly, are borne more erect on vigorous growth. The colour is creamy ivory white with fawn shading.

MADAME SEGOND WEBER (H.T.).—A variety I can highly recommend. It has beautiful long buds of shrimp pink colour, opening to flattish blossoms of salmon pink tint. A good grower. One of the best of its colour.

MARGARET (H.T.).—For exhibitors this is an excellent pink rose



A ROSE BED IN A SUBURBAN GARDEN THE FIRST SUMMER AFTER PLANTING. THE SPACE BETWEEN
THE ROSES WAS FILLED WITH TUFTED PANSIES.

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of splendid form. As a garden variety it is not superior to many of the older sorts of this colour.

MARY COUNTESS OF ILCHESTER (H.T.).—For garden culture this rose will be useful. It is very floriferous; indeed, one of the freest bloomers we have. The colour is deep pink, not especially attractive. However, the blooms are very large, and when seen in a mass they make an effective bit of colour.

MISS ALICE DE ROTHSCHILD (T.).—A splendid novelty, one of the triumphs of Newtownards. Perhaps not since Maréchal Niel was sent out have we had a finer yellow rose. It will be like a bedding Maréchal Niel. Growth is vigorous, erect, and free, and the rose has the true Maréchal Niel fragrance.

MISS CYNTHIA FORD (H.T.).—A splendid flower, either for exhibition or garden. It is of ideal form and brilliant rose pink colour. The blooms are freely produced on vigorous growth.

MOLLY SHARMAN CRAWFORD (T.).—A charming white rose of excellent habit. Perhaps the purest white next to Frau Karl Druschki. Recommended for garden culture. The growth is good and the flowers are produced on stiff shoots. Somewhat subject to mildew.

MRS. ALFRED TATE (H.T.).—A wonderful colour, coppery red, shaded fawn. Rather thin as most of this colour are, but glorious in the bud. Highly useful as a garden rose.

MRS. ARTHUR MUNT (H.T.).—For exhibitors this will be a valuable novelty, perhaps surpassing Madame Jules Gravereaux, which is an unsatisfactory rose for most amateurs. Its colour is somewhat similar to that of Madame Gravereaux—cream pink.

MRS. A. R. WADDELL (H.T.).—In the bud a wonderful colour, almost reddish apricot. When it opens it loses the colour and its value is lessened. A fine grower, rather spreading. Will be a splendid rose for massing.

MRS. FOLEY HOBBS (T.).—A grand rose of exhibition standard, lovely form, good solid bloom, colour delicate ivory white.

MRS. FRED STRAKER (H.T.).—A charming novelty, one that will become as popular as Madame Abel Chatenay, buds of great beauty, orange crimson, opening to silvery fawn and orange pink. A fine grower and an all round good garden rose.

MRS. GEORGE PRESTON (H.T.).—Another pink rose, but with exceptionally large petals. It is a useful rose.

MRS. HUBERT STEVENS (T.).—Almost pure white, of fine pointed form, very double, good grower and hardy. One of our best white roses.

MRS. LEONARD PETRIE (H.T.).—A most delightful rose, honey yellow with claret smearings on the outer petals. The flowers are large, smooth and very sweet. A first-rate novelty.

MRS. WAKEFIELD CHRISTIE MILLER (H.T.).—An attractive colour, vermillion rose, shaded pearly blush. Will probably surpass all of the Mrs. E. G. Hill type, but unfortunately there is no fragrance.

MRS. WALTER EASLEA (H.T.).—A splendid rose of rich crimson carmine colour, a flower of the Marquise Litta type, but will surpass that rose, being a good grower and yielding fine long shoots crowned with large blossoms, which at times possess a rich orange crimson colour. It is fragrant and considered by experts to be one of the best dozen novelties of the year 1910.

MY MARYLAND (H.T.).—As a rose for forcing this will probably surpass Bridesmaid and Killarney. Should be largely grown by market growers and all who force roses.

RAYON D'OR (Pernetiana).—One of M. Pernet Ducher's remarkable introductions. This raiser is a veritable wizard among roses, producing the most wonderful colourings imaginable, his Lyon Rose, Marquise Sinety, Arthur R. Goodwin, and Mélanie Soupert and dozens of others being real triumphs of the hybridist's art. In colour Rayon d'Or resembles Persian Yellow or the Yellow Broom (*Spartium junceum*). It is of no form from an exhibitor's standpoint, but it will be planted by the hundred for massing, its colour effect being splendid.

RELIANCE (H.T.).—The colour is glowing pink with creamy white base to petals. It is one of the best of the newer roses, the flowers being large, full and well formed.

WALTER SPEED (H.T.).—A glorified Antoine Rivoire. It is a sterling novelty and must become a general favourite. The colour is ivory white with pale blush edges.

WHITE KILLARNEY (H.T.).—A white sport of the popular rose, inheriting unfortunately its bad tendency to mildew, but yet must be included in our selection as it is such a fine deep flower of pure white colouring. The flowers are borne erect, making it very useful as a decorative sort, and it will also be a good show bloom for early shows and useful for pot culture.

CHAPTER X

CLIMBING ROSES

AGLAIA (Mult.).—The so-called Yellow Rambler. Would that it justified its title! At once one thinks of Crimson Rambler and imagines its counterpart with yellow blossom. Ah! be not tempted. Aglaia is no yellow rambler as one would think. There are grave objections to it on several grounds. The flowers are only pale yellow, and the plant has the unfortunate disposition of scarcely blooming at all for about four years after planting. When, however, well established, it blossoms pretty freely. So those who want a vigorous rose that in due time will bear bunches of pale yellow flowers in summer and in summer only, and are content to wait, let them plant Aglaia, but let them not tell their friends that it is a "yellow rambler."

AIMÉE VIBERT (N.).—This is one of the old climbing roses that is gradually being superseded, and not unjustly. It makes vigorous growths which only bear their large white flower bunches towards the ends. There is, however, this to be said for it, that it is in bloom in late summer, and young growths often bloom in the autumn of their first year. Still, when all is said and done Aimée Vibert is prone to produce leaves out of all proportion to the number of its blossoms. The leaves are large and handsome, and remain on the plant almost all the winter through. It seems as happy in shade as in sunshine, although its flowers are too scarce in either position to enable one to recommend it with satisfaction. It needs little pruning, and then only in the way of cutting off a few of the older growths occasionally.

ALBERIC BARBIER (Wich.).—This is one of the few roses of the wichuraiana class that may be called perpetual blooming. Dorothy Perkins, it is true, gives occasional bunches of bloom in autumn, and Hiawatha lasts long and late in bloom, but Alberic Barbier has the merit of giving quite a fair gathering of flowers after the flush of summer blossom is over. The buds are pale yellow, and the open flowers are cream coloured. Growth is most vigorous, and once the plant is well established, it is difficult to keep in bounds. But there is a simple way out of the difficulty and that, of course, is to give it plenty of room to start with. This rose has most attractive foliage—bright, glistening green—that is almost evergreen. All the wichuraiana roses possess leaves that persist a long time after those of most roses have fallen, but in this respect I think Alberic Barbier excels them all. If my garden were filled with roses of the type of Alberic Barbier my knife

would, I am afraid, get very rusty, for I have not yet pruned the only plant I have of this variety. When the shoots have covered, not their allotted space, for they have long since done that, but as much as I can afford to allow them, then no doubt I shall be compelled to cut out a few of those shoots that have obviously given of their best. There are always so many willing to take their places that I shall part with them with less regret; "youth will be served, my masters!"

ALISTER STELLA GREY (N.).—This is one of those roses that one could almost grow for the sake of its name alone. It has pale yellow flowers that are fragrant, and produced more or less freely throughout summer and autumn. It makes vigorous growth.

AMERICAN PILLAR (Mult.).—This is one of the newer roses. Not having grown it, I can only say that if its behaviour outdoors under ordinary garden cultivation leads to such results as are seen in plants exhibited at the flower shows, it is indeed well worth growing. It is only summer flowering, but the pink semi-double blossoms, produced in loose bunches, are of remarkable size and certainly very handsome. It is of the Crimson Rambler type of growth, and therefore the best blooms are borne on the one-year-old shoots. Thus the pruning consists in cutting out annually a few of the oldest growths.

BLUSH RAMBLER (Mult.).—Picture to yourselves (who are not acquainted with Blush Rambler) a rose of the vigour of Crimson Rambler, and with big bunches of apple-blossom-like flowers that come in July and only then. So will you get a very good impression of this variety that is scarcely surpassed for arch or arbour. What more can I say about it that shall give it higher praise? It is a rose for the lazy gardener as well as for those who know little of gardening and will not take the trouble to learn more, yet like to see the borders gay. For all one has to do is to plant it in well dug soil one fine November day, cut the shoots almost to the ground level the next March, and heigho! leave the rest to the rose itself. It is scarcely possible that it can disappoint. At least this is all that I did to mine, and assuredly I have had my reward. Much more than I deserved, I hear the reader exclaim. Ah! but then those little items that I have mentioned mean so much more than the uninitiated would think!

BOUQUET D'OR (Dijon T.).—This is so similar to Gloire de Dijon that one need scarcely grow both. It is almost as accommodating as the latter, and its blooms are yellower. It is excellent for a south-west or even an east wall, and grows without much encouragement.

CELINE FORESTIER (N.).—One of the old, old roses that were popular forty or fifty years ago, and now rarely seen. A year or two ago I happened to be wandering through a village in the heart of Bedfordshire, and there in the parsonage garden came across Celine Forestier smothering a little pergola beneath a sheltering wall. I cannot say that it was altogether a success, for it had developed "legginess," and its bare stems detracted from the charm of the pale



ROSE CONRAD F. MEYER (PINK).

yellow blossoms that showed pretty freely among the upper shoots. It is not a bad greenhouse rose, but nowadays it is not a variety to be reckoned with, for its hardiness is not altogether assured.

CLAIRE JACQUIER (Cl. poly.).—A vigorous climbing rose that is, however, disappointing. The strong growths it makes seem to promise well for another year's blossom, but often the frost cuts them down, and flowers are few. I have never had any success with this rose. The flowers are buff coloured, and come in bunches.

CONRAD F. MEYER (Rug.).—This is a rose that combines in a peculiar degree the qualities of strength and charm. It is one of the most formidable of all roses, making each year, with little encouragement on the grower's part, great shoots 10 feet long that are covered with the most terrible prickles. If my neighbour were an unpleasant sort of person, I should have no hesitation in shutting him out with a mass of Conrad Meyer. I could rest assured that he would not dare to interfere even if the rose had the audacity to grow beyond its legitimate bounds, for it is far too forbidding in appearance for the uninitiated to attempt to prune. I, who have come to know it well, from an acquaintance that extends over several years, have given up attempting to prune it. I tried to keep it in order for the first few years, but so vigorous was its growth and so threatening were its spines, that I felt compelled to let Conrad F. Meyer have its own way. And really I believe this is all it needs for its successful growth. Surely its nature should teach us this, for no other rose is so fully armed. Luckily, my plant is in a corner where its extended growth is likely to annoy no one (except my unfortunate neighbour). Already it covers a space quite 12 feet long, and it must be nearly 12 feet high. One thing the grower ought to see to before the autumn gales set in, and that is to tie the shoots safely to their supports, or they will lash both themselves and neighbouring plants to pieces. In a gale its fury is astonishing to see. Put nothing within 10 or 12 feet of its stem, for it rides rough shod over everything and anything; no plant can stand against it. Already I have been compelled to remove several out of the way of its all-conquering shoots. You cannot even plant anything beneath it, for each summer it starts into vigorous growth from the base. But in the last days of May and the early days of June one has eyes for nothing but its most exquisite flowers, and thoughts only for their surpassing charm. What can vie with their large rich pink fragrant blooms of perfect form? Nothing in the rose world. While the plant is in flower one forgets its overbearing disposition, its selfish nature.

CRIMSON RAMBLER (Mult.).—When I attempt to write of this rose, I feel very much as though I were telling a nursery tale to grown-up folk, for who is there that has not heard, until he is tired of hearing, the oft-told tale of Crimson Rambler, its virtues extolled, its faults made plain? I must without doubt make mention of it, but without much ado. It is not such an easy rose to grow as Dorothy Perkins,

for it belongs to the multiflora class, and all these are apt to deteriorate under careless treatment. There are three unsatisfactory things about Crimson Rambler: its somewhat evanescent flowers, their magenta tinge as they fade, and its proneness to get bare at the base. Perhaps its unwillingness to thrive against a hot wall may be counted against it, for its unhappiness in this position is most marked. It loves to have the fresh breezes blowing about its vigorous growths, and a hot wall or fence soon puts an end not only to beauty of blossom, but to charm of leaf. And to rob Crimson Rambler of its charm of leaf is altogether to spoil its attractiveness. Is there any rose with leaves and flowers that associate so perfectly as this? I know of no flower picture so complete in itself as the bright red blossoms of Crimson Rambler among the rich, green leaves. Whether, for the short time that elapses before the red flowers are merged in magenta colouring, Crimson Rambler is worth growing, is a question each must decide for himself. For my own part, I would not be without it, for the simple reason that there is nothing that can worthily take its place. There is the new Perpetual-flowering Crimson Rambler, or, to give its correct name, Flower of Fairfield, that has blossoms of much the same colour so far as I can judge from plants in bloom that I have seen at shows, but I have not yet grown it. I am told that it really is perpetual-flowering, so I think I may safely advise its being tried. I shall certainly grow it at the first opportunity. Where beginners are likely to go wrong with Crimson Rambler is in the pruning. It is most necessary, each season after the blooms are over, to cut out some of the older growths that have flowered. Then, and only then, will there be fresh, strong shoots from the base that the good gardener delights to see, growths that save the plant from the reproach of growing old.

DOROTHY PERKINS (Wich.).—How futile it seems to attempt to say anything about Dorothy Perkins that has not already been said a hundred times! For is not the name of this rose a household word in every home? Yet all of us gardeners are learning every day, and it is just possible that I have learnt something about her that my readers have not. I suppose everyone has found out that this favourite rose loves above all things sunshine and fresh air, and fresh air, perhaps, even more than sunshine. That is to say, that Dorothy Perkins is really happy only when and where her supple growths are given the support of arch, arbour, or pergola, free to the caresses of the summer winds and exposed to the winter gales. She asks not for shelter, but only for support. But true to the accommodating nature of her class (the wichuraiana roses), Dorothy Perkins will thrive on a wall facing west, or throng with leaves and blossom a wall facing south, where it opens to an archway. But to plant this rampant, free-growing rose full against a hot wall face is, if not to stifle, at least to deprive it of that which it loves best of all. There are roses suitable for walls, and others suitable for arches in the open garden, and to plant one kind where the other should go is never to know the full



THE CHIEF FAVOURITE AMONG CLIMBING ROSES, DOROTHY PERKINS.

charm of either. There is, I think, little more to tell about Dorothy Perkins that is not likely to be known except, perhaps, to say that to all intents and purposes Lady Gay is not distinguishable from it. They are so similar that one need certainly not grow them both. The pruning required by all the wichuraiana roses is extremely simple. In the March that follows planting I find it an excellent plan to cut down the growths to within about 4 inches of the ground. Then the plant sends up surprisingly vigorous shoots from the soil level, and the next season these are covered in blossom. In succeeding years there is nothing to do except to cut out occasionally one or two of the older growths when they appear to be getting too crowded. Dare I add for the possible benefit of those who have not yet made the acquaintance of this wonderful rose that the blooms are pink?

DUCHESSE D'AUERSTADT (T.).—This is a lovely yellow Tea rose, fairly vigorous, and well suited for planting against a low warm wall. It makes shoots 4 or 5 feet long, and if it flowers none too freely, each of the blossoms is well worth having. Take care of all the growths, and tie them in full length; then when the buds burst in spring you may look forward to some exquisite flowers.

FÉLICITÉ PERPÉTUE (Sempervirens).—A fine white climbing rose. The growth is vigorous, the leaves are almost evergreen, the flowers are small, in clusters, and are very freely produced in July. A well-grown plant in full blossom is very beautiful. The illustration facing page 148 shows the rose on a wall facing west, but I think it is happier out in the open, climbing an arbour or arch. It does not seem altogether happy on a stuffy wall. It shows its full beauty only when the plant is well established.

FRANÇOIS CROUSSE (H.T.).—For a wall or fence 5 or 6 feet high facing west (or south, of course), this is a bright red-flowered rose I can recommend. The buds become blossoms rather more quickly than one would wish, but they keep their colour pretty well even when wide open. My experience of it is that it never makes much of a show at one time, but whenever you pass it by, whether in June or October, there is always a flower to pick. It makes good growths some 5 feet or more long, and altogether may be classed as satisfactory. It is recommended also as a pillar rose, but I should say it is much better on a wall.

GLOIRE DE DIJON (T.).—I am sure the less I say about this the better. You have only to plant it well in good soil, against a wall facing either north, south, east or west. The chances are that it will grow well on the shady wall, though its blossoms will not be so abundant as on a sunny aspect, for the wood has not the same chance of becoming "ripened." With this, as with other climbing roses, the pruning is directed towards cutting out the older growths to make way for the new, for it is these that produce the finest blooms in chief abundance. Need I describe their colour, which is a mixture of salmon rose and pale yellow?

HIAWATHA (Wich.).—I believe I could, without much effort, write a book about the Hiawatha rose, for there is none amongst my modest collection that captivates me more. I have it as a climber, I have it as a weeping standard, and if I had room I would have it some other form if it were possible to get it. Its crimson, gold-centred blossoms are like great peach flowers of intense colouring. To make what might easily be a long story short, there is no flower that I would do more for. Does it not bloom from the second week in July for weeks and weeks together? So long, in fact, that it is difficult to define the flowering period. I actually had the audacity to take my holiday in high summer one year and left Hiawatha gaily blooming, much as I disliked doing so. When I returned in a few weeks' time, was her beauty past? Not a bit of it. If not quite as fresh as when I went away, at least the flowers showed little signs of passing. Some there were, of course, that would never again greet the sunshine, but plenty of others were ready to take their places, and so the merry game went on, until I thought it was time Hiawatha gave herself a rest, and began to think about laying in a store of vigorous shoots for next year's flowers. How little is asked in return from the grower. He has but to cut away an occasional weak, worn-out growth, and when the ground is moist sprinkle on the soil a little fertiliser.

LAMARQUE (T.).—This is a tender Tea rose with lemon-coloured buds which, however, soon become white flowers. I tried it on a south wall, but it was so long making the vigorous growth that catalogues describe it as being capable of, that I pulled it up. I am sure there are others more worthy of garden space.

LONGWORTH RAMBLER (H.T.).—This is what I call an unsatisfactory rose, and nowadays it is certainly not worth garden room. The best way to grow it is as a pillar rose, but its light red blossoms are disappointing, and although they open throughout several months they are a poor lot and never make a brilliant display.

MARÉCHAL NIEL (N.).—This favourite is rightly named "The King of Roses." It is unsurpassed, nay, unapproached for rich colouring; its golden blossoms are unique. There is no rose lover who would not grow it if he could, or, rather, if he thought he could, for the difficulties of its management are often greatly exaggerated. In favoured localities it may be grown successfully on a wall outdoors facing south, but, generally, it is not an outdoor rose. In warm positions in gardens in the south of England it may be planted in a well drained border against a south wall with every hope of success, but in those farther north it needs the shelter of a greenhouse. The finest plants I have ever seen were grown in a heated greenhouse, and the treatment was this. As soon as the flowers were over, the long shoots that had produced them—those of the previous year's growth—were cut back to within 2 or 3 inches of their base. A warm moist atmosphere was kept up until new growths had formed and reached a length of 6 or 8 feet or even more. When it was seen that growth had practically



ROSE FRANÇOIS CROUSE, ONE OF THE BEST CRIMSON ROSES FOR A WALL.



ceased, gradually more air was given, and throughout autumn and winter the house was kept quite cold, all possible air being admitted. This had the effect of thoroughly maturing the growths, and it is upon this item that success so largely depends. I have never seen a finer plant of this glorious rose than one grown in a greenhouse devoted chiefly to Figs, the conditions prevailing seeming to suit the rose admirably. These were a warm, moist atmosphere in spring and summer, and plenty of air throughout autumn and winter. During severe frost the house would be closed, but no heat given. When in spring warm and moist conditions again prevailed to start the Figs into growth the rose began to grow also, and blossoms were produced throughout the length of the long shoots that grew the previous year. This is the experience of one who has grown rose *Maréchal Niel* both for pleasure and profit:—"An old span-roof greenhouse was available. It had a roof of glass, but its sides on the north and south were entirely of wood. On the east side it was boarded half-way up, and on the west side it was all of glass. No fire heat was used except in severe weather, and just at flowering time. A good border was prepared with turfy soil and farmyard manure was freely intermixed. The plants were budded on the seedling briar, and were planted in October. They were allowed to grow to a height of 10 feet, then the shoots were tied down to wires placed about 4 feet from the glass. The plants were not forced early, but there was no difficulty in having them in bloom about Easter, and one could cut from fifty to sixty blooms a day for fully six weeks. This was, of course, after the plants had been established several years. After flowering, the small and weak growths were cut out, and the long growths were cut hard back, to within a few inches of their point of origin. They were syringed twice a day except in dull, cold weather, and the borders were mulched with rotted manure, and occasionally had a good soaking with tepid water. Growth was encouraged as much as possible during summer and in autumn; an inch or two was cut off the ends of the shoots to encourage ripening of the wood. It will be seen that this system of culture, even if only in a small house, works out to the advantage of the amateur."

MME. ALFRED CARRIÈRE (H.N.).—Here is a rose that those who ought to know continually recommend as the best white climbing rose. Yet I have had a plant against a wall facing east (not an ideal position you say, yet the position recommended by the experts of the National Rose Society for this rose), and although it has grown to the height of 15 feet, I could almost count on the fingers all the roses I have gathered or been able to gather. Truly a disappointing rose. Yet such faith have I in the prospect held out to me when the rose shall be "well established" (how high, I wonder, does a rose have to grow before it is "well established"?) that I forbear to grub it up. One has to say that the peach-white buds are long and shapely although they come in twos and threes, and that they are fragrant, but of what

value are these gracious attributes when the flowers are so shy? The growths are long, but they are only moderately thick, and it behoves one to be careful with the pruning. The thing to do is to tie in the long shoots, spreading them out as much as possible (an excellent thing, by the way, with all wall-grown roses), and when in succeeding years lateral or side shoots form, these are cut back in March to within 2 or 3 buds of the base. I have done all this and, alas! I am still waiting for the harvest of bloom. I must say that the few roses I have had have opened throughout summer and early autumn, which would seem to show that it is, as declared to be, a perpetual blooming variety.

MME. HECTOR LEVILLIOT (H.T.).—A moderately vigorous climber for a low, warm wall or fence. The colour of the flowers is yellow with orange shade. They are very beautiful, but alas! as so often happens with the loveliest flowers, they do not come so plentifully as one could wish. However, as with the Duchesse d'Auerstadt, I grow this rose for its exquisite colouring, and trust to luck for numbers.

NOELLA NABONNAND (T.).—The finest plant I have ever seen of this rose is in Mr. Leopold de Rothschild's garden, at Gunnersbury, in Middlesex. There it tops a pole quite 15 feet high, and when in full bloom its great purple crimson blossoms are a glorious sight. None of my poles being available when I got Noella Nabonnand, I planted her against a fence facing south-east, and there, although she is not 15 feet high, or ever likely to be, I am well content with her behaviour. The unusually large blooms are fragrant, but when past their best, their colour is none too pleasing. A few pillars of it grouped together would make a striking display. It is a Tea rose, though it shows no signs of being tender, and continues to bloom more or less throughout the summer.

PAPILLON (T.).—A climbing Tea with beautiful sunset-coloured buds and pretty rose and copper-tinted, open flowers, that I cannot conscientiously recommend. I have had it on a fence facing west for some years, but it has scarcely justified its planting. The first growths that are produced, and from which one has every right to expect the finest flowers, invariably tumble off, and one has to wait for blossoms until the plant makes fresh growth. The fact is, I suppose, that it is somewhat tender, and really needs a south wall. The flowers are in loose bunches, and those who care to put Papiilon on a sunny wall would doubtless find it more satisfactory than I have done. My cultivation can scarcely be at fault, for it grows freely enough, having shoots 8 feet or more long.

REINE MARIE HENRIETTE (H.T.).—When I say that the flowers of this old rose (thirty-three years have we grown it) change to an unpleasing shade as they fade, I have said all that I have to say against it. Otherwise, I have nothing but praise for its vigorous growth and full, shapely buds, so different from the semi-double blossoms of so many climbing roses. Reine Marie Henriette is a fine rose for an east or west wall and, of course, it is happier still on one that faces south. This, however,

we keep for roses that will grow nowhere else. For a wall facing north there is scarcely a better rose than this, although there its flowers will be fewer than in a sunny spot. I have gathered a little bunch of blooms from *Reine Marie Henriette* on Christmas Day from a plant growing on a wall facing west, and on the same plant the first blooms were open on Temple Show day, the end of May. Surely a record hard to beat, especially when one considers that scarcely a day passed between those dates that I could not gather flowers. The colour of the blooms until they fade is bright red, and the plant is so like *Gloire de Dijon* in every respect, save colour, that it has been not inaptly named the "*Red Gloire de Dijon*."

REINE OLGA DE WURTEMBERG (H.T.).—This scarlet-crimson single blossomed rose has had a long innings; since 1881 it has been grown in gardens, and I think it has pretty well had its day. It is of vigorous growth, and flowers freely, but as is to be expected, its single blossoms, handsome though they are while their beauty lasts, soon pass. My experience of it is that it is slow to make a satisfactory start and only when really well developed is it worth growing at all. It is not to be compared in decorative value with *Hiawatha*, for instance, although the blooms are larger. I have seen it very fine, but I cannot say that I have ever had it very good. However, those who succeed with it will be rewarded with a brilliant if fleeting display, but personally I think there is now scarcely room for it. It needs a rich, well dug soil and a sunny spot to induce vigorous growth. The leaves are large and handsome, and they persist a long time.

SOUVENIR DE LA MALMAISON (Bourbon).—I have recollections, and I am glad to say recollections only, of this old rose, for they are not pleasant ones. We are now no longer acquaintances even, and is it to be wondered at, when I grew *Malmaison* for three years, and— But let me relate the shameful treatment to which I, not the rose, was subjected. I gave it all that a rose is supposed to like best, a well dug soil enriched with manure, a firm support against which to climb, and chose November as the planting month, for I was taught that before you can expect a rose to bloom well, you must see that it has every opportunity of making good growth. Not that *Malmaison* did not grow. Grow! ye gods! it grew far too big for my small garden, but alack-a-day, I looked in vain for those blossoms that are seductively described in rose catalogues as "blush white, shaded flesh, large and double, very sweetly scented, especially good in autumn." Mine were good neither in summer nor in autumn, for they were chiefly conspicuous by their absence! It is true that a few stragglers made their appearance, but they either fell off before opening, or the petals stuck together in the way of those sulky roses that "ball." If I attempted to pluck them they showed their displeasure by tumbling to pieces. Oh, what a disagreeable rose! And with all this show of bad temper, *Malmaison* had the effrontery to grow like a weed! So, to make a long story short, *Malmaison* and I

parted company. Lest there be some among my readers who have succeeded where I have failed and wooed and won this old Bourbon rose, let me only say that I think there are plenty of others better worth growing.

TEA RAMBLER (T.).—The rose is often referred to as a flower of June but, as every flower lover knows, most of the up-to-date roses blossom in July. But Tea Rambler keeps up the old tradition, and gives of its best in the days of early summer, from the middle to the end of June. One of the accompanying illustrations shows Tea Rambler on a trellis in my own little garden, where, alas! the roses often grumble and sometimes show their resentment in a far unpleasant way, because I do not give them the space they need. I feel sorry for them, often enough, but I like to try as many varieties as possible, and so if the roses suffer, it is in a good cause, for do not my readers benefit? At least, I console the plants that it is so, and I hope I do not offer them empty consolation. Welcome as Tea Rambler is, since it blossoms when most others are in bud, it is sad to say that while mid-June sees the first of its blossoms, early July sees the last of them. It is one of those that bloom in summer only. But at present we cannot afford to dispense with climbing roses that bloom only once, for there are so few that do otherwise. And even those that are more or less perpetual-flowering never make much of a show at one time. So far we cannot have it both ways, but there is no telling what those wizards among the flowers, the hybridists, may not create before many seasons have passed. But do not we appreciate the flowers so much the more when they just come and go, without lingering to say farewell? I think we do. At least, I am sure there is no rose that I hail with greater joy than Tea Rambler, and none that passes amid so much regret, chiefly perhaps because its blossoms come not in twos and threes, but in great bunches; first with buds of sunset colouring, then in full blown blossoms of pink and white. But I might say much more in praise of this lovely rose and then not extol all its merits. Let the reader grow it. I am more than sure he will not be disappointed. How it grows in the deep, loamy soil of my little garden! I am not exaggerating when I say that it makes annual growths 10 feet long and as thick as one's thumb. Mr. E. Teschemacher, whose name may not be unfamiliar to those readers who are music lovers (and what true gardener is not?), says that in his garden in Bucks, Tea Rambler sometimes grows so vigorously that the next season it forgets to bloom. I am happy to say it is not so wayward with me. The more vigorously it grows the more freely it seems to bloom. And the only pruning I give it is occasionally to cut out an old growth when its beauty is past. It shows gratification by smothering the trellis with fresh shoots of really embarrassing vigour. In fact, even now, it is fighting a battle royal with its neighbour, Blush Rambler (after having vanquished *Félicité Perpétue*, whose slender shoots were soon put out of court), and it is a moot point which will come off best. I



A ROSE PERGOLA 60 FEET IN LENGTH, 4 YEARS AFTER PLANTING.
ROSE LADY GAY IS SHOWN IN THE FOREGROUND.

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might, I think, safely lay odds on Tea Rambler if I were inclined to wager, but both are so precious that I shall have to step in and play the rôle of peacemaker.

WILLIAM ALLEN RICHARDSON (N.).—This favourite rose became known to gardeners at the same time as another still widely grown, Reine Marie Henriette, thirty-three years ago. As a buttonhole rose, it stands high in popular esteem, and it would not be easy to find a better among climbing roses. Unfortunately William Allen Richardson has an impudent impersonator in the shape of a variety with pale, washed-out flowers, and there is no way of telling "t'other from which" until the plants come into bloom. Then what disappointment for those who possess the impostor! The best way to avoid such a *contretemps* is to go to the nursery and there choose a plant in bloom, taking care to select the orange-coloured sort. One fault this grand old rose has, at any rate in my garden; some of its flowers are deformed and do not open freely. This is especially noticeable in a dull, cold season, so readers would be well advised to plant William Allen on a south wall where it will get all the sunshine that is going. I find that feeding the plant well with liquid manure helps it over this little difficulty.

NEW CLIMBING ROSES.—Among the newer climbing roses that deserve mention are some very charming varieties. White Dorothy Perkins, for instance, is invaluable, though to be seen to the best advantage I think it needs to be associated, in common with other white roses, with those of rich colour. Those who are fond of the old white-flowered Aimée Vibert may care to know that there is now a variety with pale yellow blooms, Aimée Vibert à fleurs jaunes. Rubin is a fascinating rose with lovely soft red flowers, freely produced, and enhanced in attractiveness by the reddish leaves. This is a splendid rose for pillar or pole. Trier is the finest perpetual flowering climbing rose. It bears large loose bunches of white flowers at the end of each growth, consequently the display is maintained throughout the summer. Among the newer wichuraiana sorts are many charming roses, e.g. Leontine Gervais, salmon and yellow; Joseph Liger, yellow and pink; Excelsa, a most attractive variety, really a red Dorothy Perkins; Shower of Gold, with yellow buds and paler flowers; and Desire Bergera, copper and red.

Those who care for fewer blooms of good form should grow the following roses against sunny fences: Climbing Caroline Testout, climbing Liberty, climbing Lady Ashtown, climbing K. A. Victoria, climbing Captain Christy, and climbing Mrs. W. J. Grant.

I am afraid my rose chapter is encroaching seriously on the space that should be devoted to other flowers, and I must curtail its disposition to trespass. Although I do not pretend to have exhausted the list of roses that are well worth growing, I have, at any rate, named many of those that have given the greatest pleasure and satisfaction (and occasionally disappointment) in my own garden.

CHAPTER XI

HARDY ANNUALS

NONE of us who have a care for the gaiety of our gardens can afford to dispense with hardy annuals, least of all those who have little time to spare for gardening and, therefore, like their labour rewarded with quick results. You sow the seeds of these charming flowers out of doors in March in the bed or border where the plants are to bloom, you thin out a few when there are too many, and they are in full blossom by July. Neither do they cumber the ground when they have played their part. They do not demand a lot of tidying when their day is past; they ask only to be pulled up and thrown on the garden fire. But the ease with which they grow and come to blossom has, times out of number, proved their downfall and disappointed the gardener. It is human nature to give but little heed to those plants that seem not to demand it for themselves and so, more often than not, once the seed is sown, annuals are left largely to look after themselves. But one cannot wrest the full measure of beauty even from such accommodating plants as hardy annuals without giving something in return, even if it be ever so little care, while extra care is well repaid. I often go to what is really unnecessary trouble and grow them singly in small flower pots, planting out in April where they are to bloom. But I am sure no one grows finer annuals than those that reward my care when I treat them in this way. Not that I would make out that such old favourites as Shirley Poppies, Mignonette, Love-in-a-Mist, and the rest of them are difficult to grow—not a bit of it; but, at least, if they are worth growing at all they are worth growing well.

How may we gather a maximum of blossom with a minimum of care? That is the question, I fancy, that is continually perplexing the amateur. Well, so far as annuals are concerned, the ground should be dug eighteen to twenty-four inches deep during the winter or early spring, so that when sowing time comes it crumbles readily beneath the fork

and rake. Some of the seeds are very tiny, and if committed to lumpy earth they will never so much as show green above the ground. The least one can do for them is to prepare the soil well before the seeds are sown, for so short are their lives that there is not much one can do for them afterwards. Sow the seeds as though they were valuable. Though they may actually be no more costly than Mustard and Cress, it does not follow that one should sow them as thickly. Sprinkle the smallest seeds lightly on the crumbled earth, pass the rake gently over them so that they may be just covered, then shall they find sufficient warmth and moisture and enough air to enable them to develop into plants. All except the tiny seeds, such as Poppies and Mignonette should have a light covering of soil so that they are buried say, a quarter or half an inch.

The season of blossoming of hardy annuals may to some extent be regulated by varying the time of sowing. Would you have some of them in bloom with the Tulips and Daffodils? Then seed must be sown in mid-September. The little plants or, at any rate, most of them will pass the winter safely enough. Mrs. Earle, in her delightful "Pot-Pourri from a Surrey Garden," mentions that she sows together, broadcast in autumn, seeds of Love-in-a-Mist and *Gypsophila gracilis* (which I do not know and can find no mention of, though I suspect it is the same as *Gypsophila elegans* which, although a perennial, is often grown fresh from seed every year), and one can imagine that the effect when both are in bloom in spring is very charming. There is this to be said in favour of autumn sowing, that as a rule finer and more floriferous plants result than from seeds sown in spring, and the plants, too, last longer in bloom. Messrs. Sutton and Sons, whose experience of annuals is probably unsurpassed, especially recommend the following as being suitable for autumn sowing for spring blooming: *Erysimum* ; *roffskianum* and *arkansanum*, two bright little plants that produce a profusion of yellow blossoms; the blue and white *Nemophila*, the lovely rose-coloured Catchfly (*Silene pendula*) and its white variety; the Calabrian Soapwort, with small pink blossom, and Virginian Stock. But this short list does not include nearly all those annuals that thrive from September sown seed. In fact, it would be easier to mention those that are not suited to this method than those that are, since nearly all may be so grown. It is best, however, to restrict one's selection to those that are low growing and

that yield a profusion of bloom. Thus we may exclude Annual Chrysanthemum, Rose Mallow, Larkspur, Clarkia, Cornflower, Scarlet Flax. These are tall growing and more liable to injury in rough weather than the low-growing kinds.

Amateurs whose garden space is so restricted that they find difficulty in allotting space for a reserve border where such spring flowers as Daisies, Forget-me-Nots, and Arabis are grown on during the summer months may be glad to know that some charming effects can be obtained by the use of autumn sown annuals among the spring flowering bulbs. When the latter are planted in September seeds of suitable annuals may be sown as soon as the bulbs are put in. If, as is quite likely, September is considered too early for bulb planting, it is an easy matter to sow the annuals in boxes and transplant them carefully to the bulb beds when the latter are prepared in October. By using annuals in this way some delightful spring flower pictures may be obtained and at merely nominal cost. Imagine, for instance, that fine yellow Trumpet Daffodil Emperor, its blooms rising from a carpet of blue Nemophila, or the stately scarlet and gold Tulip, Keizer's Kroon, carpeted with white Virginian Stock or Tulip Queen of the Whites (perhaps the best of all white Tulips for massing) above a groundwork of pink Saponaria, or commingling with the orange yellow blossom of Erysimum. And such results are within reach of every amateur who cares to take the pains to prepare for them.

Next in importance to thorough soil preparation and careful seed sowing comes the task of thinning the seedling plants. One has, of course, to sow more seeds than one expects to have plants since some of them are pretty sure not to come up, but to scatter the seeds thickly is to make thinning a matter of difficulty. When the seedlings are an inch or so high some of them should be carefully pulled up when, and only when, the soil is moist. To attempt this in dry soil is not only to give oneself additional trouble, but the chances are that the plants left behind will be damaged also. I suppose there is scarcely any annual that needs to be less than six inches from its neighbour if it is to have a chance to give of its best, while some, such as Larkspur and Godetia, may well be left twelve to eighteen inches apart at least, and as for Annual Chrysanthemums and Musk Mallow, two feet of space between each plant is scarcely too much to allow.

The work of thinning is not to be completed in one day.



BORDERS OF AUTUMN FLOWERS IN A GARDEN IN NORTH WALES.

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The proper way is to pull up a few seedlings at a time, say, at intervals of a week, until finally the remaining plants have sufficient room for development. Let me now briefly refer to some of the best of these delightful flowers, and having done so, leave the reader to make his own choice, according to his likes and dislikes.

ACROCLINIUM.—Would you have so-called Everlasting Flowers in the home when frosts and November fogs have taken possession of the outdoor garden and destroyed even "the last rose of summer"? Then grow the *Acroclinium*, whose rose and white blossoms retain much of their beauty long after they are cut, if gathered before the flowers are fully opened and hung up by the stalks to dry for a few days. Seed is sown in March where the plants are to bloom, since this, in common with most other annuals, does not appreciate being disturbed.

ALYSSUM.—The Sweet Alyssum will never lack devotees if only from the fact that it belongs to that class of flower that needs only to be sown and thereafter left alone. But if you would have this plant in full beauty let the seedlings be at least a foot apart. Good as the ordinary Sweet Alyssum is, the dwarf-growing variety is still better; I have discarded the former for the latter in my own garden. This little, low-growing plant gives greater return in the way of blossom than any I know. From seeds sown in March where they are to bloom, the seedlings are in good flower by July, and November still finds them little tufts of white. And how they sow themselves! The following season you will find the dwarf Sweet Alyssum springing up all over the flower beds. As an edging plant it is unsurpassed for neatness and easy cultivation. It may not have grace enough for some folk, but its lack of grace is accompanied by compactness, and this characteristic renders it invaluable as a carpeting plant. Each should be quite six inches from its neighbour, and might well be even 12 inches, since the finer the plant the longer will it last in bloom. If for any reason the bed or border which it is proposed to plant with Alyssum is not ready when March, the seed-sowing time, comes round, then seeds may be sown in any odd corners, transferring the seedlings later on to their flowering places. I have often used this little Alyssum as an edging to rose beds, and it forms a perfect border the whole summer through.

ANAGALLIS (*Pimpernel*).—Everyone has heard of the little Scarlet Pimpernel that grows freely in waste places, and often where it is scarcely wanted. Here and there it occurs in the cultivated garden, but few would recognise it under the disguise of *Anagallis*. I am not going so far as to recommend the Scarlet Pimpernel as a garden flower, for often enough it comes there unasked. I should, however, like to recommend the improved variety called *Garibaldi*, which is really worth growing for those who care for and find beauty

in these tiny plants. There is also a blue Pimpernel called *Philip*, and the two together are not to be overlooked. One may sow the seeds out of doors in early April, and this is perhaps the best plan of all; otherwise they are sown in the greenhouse in early March and put out in late April where they are to bloom.

ARCTOTIS.—Few amateurs attempt to grow the *Arctotis*; but one which seedsmen catalogue as *A. grandis* is to be recommended for those who care for flowers of the Marguerite type. This is a half-hardy annual with large white flowers, with coloured centre. *Lep-torrhiza*, with orange-coloured flowers, is also worth growing; the whitish leaves, too, are handsome. Seeds sown in warmth in February or March usually germinate without difficulty, and the plants may be grown on for putting out of doors in April, or they may be repotted into large pots and grown in the greenhouse. They do excellently in a sunny greenhouse that is not heated.

ASPERULA (*Woodruff*).—There are two kinds of *Woodruff* grown in gardens—the blue and the ordinary sweet-scented white kind. While the latter is perennial, the former is only an annual; it is, however, a hardy annual, and so needs no more care than any other of its class. The seed is sown out of doors where the plants are to bloom. Both are suitable for the shady border, and may be grown there as an edging. The sweet white-flowered *Woodruff*, if sown in odd shady corners, will often become naturalised.

BARTONIA AUREA.—This is a handsome yellow-flowered plant growing some twelve or eighteen inches high, and to those who like to have an uncommon flower in their gardens it is to be recommended. It is only showy when grown in the mass, and is preferably sown where the plants are to bloom.

BRACHYCOME IBERIDIFOLIA.—This is the somewhat alarming name given to the Swan River Daisy, a very pretty little annual flower that blooms freely and for a long time. It can be credited only with a height of eight or nine inches, but its small blossoms, which are like miniature Marguerites and can be had in either blue, rose, or white colouring, fully compensate for any shortcomings in the matter of stature. It is a hardy annual, and the seed is sown out of doors in March.

CACALIA (*Tassel Flower*).—This is a showy hardy annual, commonly called the Tassel Flower on account of its striking orange-red blossoms, which are rendered additionally useful from the fact that they are produced on long stems and are thus of great value for decorative purposes when cut. The seed is sown in March out of doors where the plants are to bloom, and as they reach a height of twelve to eighteen inches each plant should finally stand at least six inches from its neighbours.

CAMPANULA (*Bellflower*).—The chief hardy annuals amongst *Campanulas* that are worth growing are *attica* and its white variety. They are tiny plants growing only about six inches high, but

they have the merit of continuing in bloom a long time if the old flowers are carefully picked off as they fade. The two together form pretty patches at the extreme front of the flower border, or they may be grown as an edging. *Macrostyla*, with purple blooms, is also very pretty.

CENTAUREA CYANUS (*Cornflower*).—The Cornflower has at last come to its own. Doubtless because it was originally a wild flower gardeners have hesitated to use it freely in their beds and borders, for anything that suggests a weed is strictly tabooed in most gardens, especially in those where primness and neatness are the order of the day. The Cornflower is still, and doubtless always will be, a more or less "weedy" plant, but now it is able to boast of many and varied colourings, and so has a stronger claim on the gardener's attention. There are blue, white, red, rose, purple, and almost black Cornflowers, and one is as easily grown as the other. It is, of course, a hardy annual, and, like others of this class, is easily raised from seed sown out of doors in March or April where the plants are to bloom. Its needs are of the simplest and in common with almost every other plant, it thrives best in a well-tilled soil. It is nevertheless happy enough on poor ground. Does it not flourish abundantly on those badly tilled cornfields where perhaps the farmer's sense of the utilitarian is obscured by an appreciation of wild-flower beauty? Its weediness is atoned for by its attractiveness of leaf and stem. These are not of the common green of most plants, but of a pleasing silvery shade.

CENTAUREA MOSCHATA (*Sweet Sultan*).—Perhaps the greatest favourite among *Centaureas* is the Sweet Sultan, an annual that has lost none of its charm and fascination. It has somewhat pronounced likes and dislikes. Chief among the likes is a well drained soil containing lime; and chief among its dislikes is heavy, cold ground. Any well dug soil can easily be made suitable by mixing with it some mortar rubble from the builder's yard. It is a mistake to sow the seed too early, April being a suitable time. The seedlings do not like being moved; therefore seed must be sown where the plants are to flower, the plants being subsequently thinned out to six inches apart. Happily, Sweet Sultans are now likely to gain increased popularity, for some exquisite new varieties have become available, largely owing to the efforts of Messrs. Jarman and Co., of Chard. They have several beautiful named sorts, especially fine being The Bride (white), Bridesmaid (yellow), and Mrs. Townsend (mauve). Another way to grow Sweet Sultans is to sow the seed in October in pots or boxes, wintering the seedlings in a cold frame and protecting them from sharp frost. The plants will bloom early the following summer, and, as is common with autumn-sown annuals, will make even finer plants than those from seed sown in spring.

CHRYSANTHEMUM, ANNUAL.—The annual *Chrysanthemums* are amongst the most charming of all summer flowers. It seems difficult to realise that bushes two to three feet high and eighteen inches

acces, such as they form if well grown, can be obtained in three or four months from seed-sowing. Seed is commonly sown outdoors in March, where the plants are to bloom, the seedlings being thinned out; but these fine plants are worthy of greater care. I make a practice of sowing the seeds singly in two-inch wide flower pots in the greenhouse in March. The little plants make rapid progress if kept in the greenhouse for two or three weeks after showing through the soil. They are then hardened off, and as soon as the little pots are full of roots the plants are put out of doors in well dug soil. They should be planted from eighteen inches to two feet apart, for it is astonishing what fine little bushes they develop into. The large Marguerite-like flowers may now be had in some charming colour shades, chiefly primrose and white, variously marked with other colours. I do not think the four varieties introduced by Messrs. Sutton are surpassed. They are Morning Star (primrose), Eastern Star (primrose with red brown centre), Evening Star (deep yellow), and Northern Star (white with dark centre). The varieties of *carinatum* offer flowers of rich and varied colours, while amongst those of *coronarium* are also several that are handsome. They vary in height from one to three feet.

CLARKIA.—This always seems to me to be a flower that does not come up to catalogue recommendations. No doubt the same might be said of many flowers, but this has always been my feeling with respect to Clarkia. If really well grown and massed there is an undoubted attraction in the tall spires of blossom, chiefly salmon and rose-coloured; but the plants have such a bad habit of becoming weedy on the slightest pretext offered by inattention on the part of the grower that I have always been more or less disappointed in them. To do the Clarkia justice, however, let me say I have been compelled to admire them when really finely grown plants, massed in their hundreds, have attracted my attention in seed-trial grounds. The seedlings need to be thinned out to at least six inches apart, otherwise the flowers will only be at the top of the stems. Possibly my reason for failing with them was that I was anxious to grow two plants where there was really only room for one. They may be had in both tall and dwarf varieties, but the tall ones are the more attractive. Brilliant Rose and Double Salmon are two of the best; the former grows about twelve, the latter about twenty, inches high.

COLLINSIA.—This is, I suppose, one of the most popular of all hardy annuals—at any rate, it deserves to be. It is a fine little plant, growing only some eight to ten inches high, but its slender stems are smothered in attractive blossoms. There are two kinds—bicolor, which has lilac and white flowers, and candidissima (white). It comes very readily from seed sown where the plants are to bloom. It is one of the best for sowing in autumn.

COLLONIA COCCINEA.—This is an annual not at all commonly grown, yet it is worthy of notice, if only for the fact that its flowers

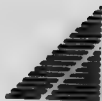
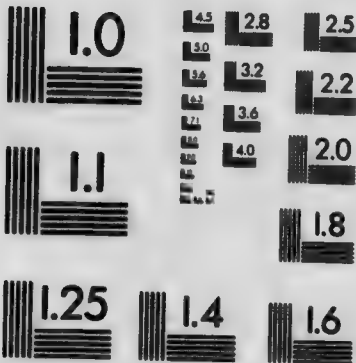


A GROUP OF ANNUAL LAKEFERS.



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are of a colour shade unusual amongst hardy annuals—i.e. bright orange red. It has the merit, common with other accommodating flowers, of sowing itself pretty freely if the plants are allowed to shed their seed. It grows about twelve inches high.

COREOPSIS (*Tickseed*).—Those who like to have plenty of flowers to fill their vases with in late summer and autumn should on no account omit to grow the *Coreopsis*. They like rich soil, and it is worth while providing them with this since they so well repay the grower's care. They may be sown where they are to bloom. Two of the very best are *tinctoria* with yellow and brown flowers, growing some three feet high, and *Drummondii*, with beautiful golden yellow blossoms on eighteen-inch high stems. *Atrosanguinea* has dark red flowers, and grows from two to three feet high. *Grandiflora* is a handsome yellow-flowered border plant, remaining long in bloom. It is very commonly grown as a biennial—that is to say, seed is sown in June of one year to produce plants that will bloom the next; it may, however, be induced to flower the same year if seed is sown early in spring in the greenhouse, the plants being put out of doors in late April.

DELPHINIUM (*Larkspur*).—As the accompanying illustration will show, the annual *Larkspurs* are among the aristocrats of annual flowers, and none is more worthy of the amateur's garden ground. Seeds may be sown out of doors where the plants are to bloom, but I find the best results are obtained when one sows the seed in flower-pots in the greenhouse in early March. As soon as the seedlings are through the soil I transfer each one singly to small pots and grow them on for planting out of doors in April. Then the reader may, if he follows this example, become the proud possessor of a flower-bed such as is illustrated. A packet of mixed seed will give many colours—some of them pleasing; others of purplish magenta shades which are, to say the least of it, scarcely so attractive as the blue and white and rose shades. But seeds of separate colours are now sold, so that there is no excuse for mixing colours indiscriminately. The best three are the light blue, dark blue, and rose: all are most lovely flowers. The plants grow from two to three feet high and blossom for weeks together from July onwards. They should be put out about one foot apart in well prepared soil; if this is done, the reader will have at least one bright flower-bed in his garden. The ease with which perennial *larkspurs* may be grown from seed is mentioned on another page.

DIASCIA BARBERAE.—This pretty little annual belongs to those that are neglected and unworthily neglected. It grows some ten to twelve inches high, and the slender stems produce an abundance of pretty coral-pink blossoms. Seeds are sown in the greenhouse in March, the plants being put out of doors in April.

ERYSIMUM.—This somewhat formidable name disguises a charming little yellow-flowered annual belonging to the *Wallflower* family. In fact, when well grown and in full blossom it might easily from a

distance be thought by a stranger to be the Wallflower. There are two kinds grown, and both have rather unusual names: *Arkan-sanum*, with yellow flowers, and *peroffskianum*, with orange-coloured flowers. Both are hardy annuals and are sown out of doors in March where the flowers are wanted. As I think I have already mentioned, these make a charming spring display from autumn-sown seed. Carpet your bed of blue Grape Hyacinths with them and watch joyfully for the result in spring.

ESCHSCHOLTZIA (*Californian Poppy*).—This is, above all things, a flower of the sun. The flowers open only in a sunny spot, and the soil can scarcely be too warm and, in moderation, too dry for them. For clothing a hot, dry, sunny bank they are unsurpassed. But to have them at their best they should be autumn sown. Wintry weather has no terrors for them, and by the spring they are thoroughly well rooted and able to give freely of their brilliant blossoms, which are chiefly of orange and red shades. They have the merit of sowing themselves when once established. Mandarin (orange and crimson coloured) is one of the finest of all. *Crocea*, with orange yellow flowers, and *Rosy Queen*, which is rose pink, are a few of the best. Seeds may, of course, be sown out of doors in March where the plants are to flower.

EUTOCA VISCIDA.—Here is a plant that is neglected by nearly every gardener. Yet it has two recommendations that should appeal strongly to the reader. First of all, it has blue flowers, and these are never common; secondly, it is a plant on which the bees delight to cluster, and is not a gardener often a bee enthusiast? Even if he be not expert in the management of bees, at least he likes to see them and hear them buzzing about his flowers. What more is there to say about it, and what further praise does it need? It grows about twelve inches high and is sown in March where it is to bloom.

GILIA.—The finest of the Gilias is a half hardy biennial, a particularly handsome plant that is not grown nearly so much as it deserves. Its name is *Gilia coronopifolia*. There are, however, several beautiful annuals, slender-growing plants, varying in height from six to eighteen inches, and with flowers of various colours. One of the best of the low-growing sorts is *dichotoma*, which grows only about six inches high and has white flowers. *Nivalis* grows eighteen inches high, and has white flowers also. *Capitata* has pale mauve, and tricolor, lavender and white blooms; both grow about eighteen inches high.

GODETIA.—This is one of the best of the hardy annuals, and, if massed, produces a wonderful colour display. The flowers are of many and varied colours, and he must indeed be a difficult person to please who is not satisfied with at least some of them. The only item in its management that is really worth insisting upon is the necessity of allowing each plant plenty of room. Unless this is attended to, the plants grow weak and slender, and the flower display is as a consequence poor and fleeting. When, however, one thins the seed-



ONE OF SMALL ANNUAL SUNFLOWERS—PRIMROSE DAME, FAR MORE ATTRACTIVE THAN THE GIANT KIND.



lings ultimately to twelve inches apart, they develop into little bushes that, as July comes round, are smothered in blossom. Seed is sown in March where the plants are to bloom. One or two varieties stand out conspicuously in point of merit above all others. They are: Double Rose, which grows from eighteen inches to two feet high and has fine, large, double rose-coloured blossom; Duchess of Albany, white, growing about twelve inches high; and Lady Albemarle, of the same height, with crimson flowers. Those who wish for further varieties may find them enumerated in any seedsman's catalogue.

GYPHOPHILA (*Chalk Plant*).—The beautiful white-flowered *Gypsophila*, that is such a handsome border plant and so familiar and valuable when cut for vase decoration, is a perennial; there is, however, one annual well worth growing. It is called *elegans*; it is twelve to eighteen inches high, and has white flowers. It is of greater value for arranging with cut flowers, perhaps, than for the display it makes in the border, and I would advise its being grown with this end in view. Those who want a pretty little flower for their rockery should try *muralis*, with blossoms of palest yellow. It grows only a few inches high.

HELIANTHUS (*Sunflower*).—To mention the annual *Sunflower* is at once to conjure visions of those giant plants, each surmounted by one great yellow bloom, that are such a conspicuous feature in many cottage gardens during the summer. There is no need for me either to recommend or depreciate this kind, for it is sufficiently familiar to everyone. There are, however, several branching, free-blooming annual *Sunflowers*, growing three or four feet high, that are well worthy of recommendation. One that is particularly good is called *Stella*; it has rich yellow blooms. *Sutton's Miniature* and *Primrose Stella*, the former with yellow and the latter with primrose-coloured flowers, are others worth mentioning. These are hardy annuals, so little need be said about their cultivation. The seeds are sown where the plants are to bloom.

HELICHRYSUM (*Everlasting Flower*).—This is the most popular of the so-called *Everlasting Flowers*. Seed is sown outdoors in March where the plants are to bloom. There are various colours—white, pink, rose, pale yellow, and other shades. The plants grow about eighteen inches to two feet high, and if the flowers are cut before fully expanded they keep fresh for most of the winter, if first well dried. This is accomplished by hanging them up in bunches in some cool, dry place, the flowers downwards; they will then be ready for use in a few days.

HELIPTERUM.—This is another of the so-called *Everlasting Flowers*, but not of such value as the preceding, since the flowers, when cut, do not last so long. The most popular is one called *Sanfordi*, with yellow flowers; it grows about fifteen inches high.

HIERACIUM (*Hawkweed*).—Those who are familiar with British wild flowers will doubtless recall the *Hawkweeds* which, as found growing wild, have little claim to beauty. The finest of cultivated sorts

is aurantiacum, a perennial, particulars of which will be found on p. 62. There are, however, annual Hawkweeds, and they may be had in several shades of colour. Although inferior to many hardy annuals commonly grown, they are not to be despised, and anyone who aspires to a fairly complete collection should not fail to include them.

HUMULUS (Hop).—The annual Hop, *Humulus japonicus*, is not to be confounded with the perennial Hop, *Humulus lupulus*. The latter, unless there is plenty of room for the accommodation of its rampant growth, is apt to become somewhat of a nuisance; but the annual Hop, which of course dies in the autumn, does not embarrass the grower to the same extent. However, it makes vigorous growth, reaching a height of eight to ten feet in its short season. It is a hardy annual, and may be sown out of doors where it is required to bloom. There is a variety with variegated leaves.

IBERIS UMBELLATA (Candytuft).—Candytuft is among the most accommodating of all flowers grown in gardens. There can scarcely be another plant that gives so little trouble, and if its blossoms do not last in full beauty so long as one would wish, why, what can you expect from a plant that comes to maturity from seed within the space of about four months? But even the duration of its flowering season is to a large extent in the hands of the gardener. If the seeds are sown thickly and the seedlings are not properly thinned out, then there will be weakly plants, no sooner in bloom than they are out again. Candytuft seeds are fairly large, so there is no excuse for thick sowing, and, as a rule, they germinate very freely, if the ground has been well stirred before they are sown. If sown thinly and the plants thinned, to, say, nine inches apart, the Candytufts will develop into posies of bright blossom twelve inches or more high. They are now offered in separate colours, such as crimson, carmine, white, etc. The most handsome sorts are those known as spiral Candytuft. They grow about twelve inches high and produce fine large heads of flowers. Seed is sown in March where the plants are to bloom.

KAULFUSSIA AMELLOIDES.—If any reader wishes for an uncommon plant to form an edging—a plant, too, that flowers from seed within a few months—he might do worse than try the hardy annual that has the somewhat cumbersome name given above. The flowers are of different colours—shades of blue, purple, and crimson; its height is about six inches.

LATHYRUS (Sweet Pea).—Need I do more than refer the reader to the special chapter on this flower, of which the rise in popular estimation is one of the flower wonders of the twentieth century?

LAVATERA (Rose Mallow).—Ever since I made acquaintance with the Rose Mallow I have kept a warm place in my heart for it, and equally have I reserved for it a prominent position in the garden. It is one of the most fascinating of all hardy annuals, growing, as it

does, some three feet high and bearing a long succession of rich rose-coloured Mallow-like flowers. Some may be inclined to cavil at not getting their money's worth, since the individual blossoms are fleeting, but more than full compensation is found in the rich beauty of its flowers and the long season over which they are produced. One may, if so inclined, form a summer hedge of Rose Mallow, and was there ever such a hedge? I have never seen it really at its best, except in the gardens at St. Fagan's Castle, the Glamorganshire residence of Lord Plymouth. There it is massed in half wild places, not by the dozen, but by the hundred, and in August the wide stretches of colour furnished by its large and conspicuous flowers are excelled by nothing else then in season. The seeds are fairly large, so there is no excuse for sowing them too thickly, and to do this is to preclude all possibility of a long flowering season. Leave the plants at least 20 inches apart; then they will have room to branch out, as they are always only too willing to do. When the main stem has finished blossoming, the side growths take up the running. The finest of all varieties is *rosea splendens*; none of the others is fit to be mentioned with this. There is a white variety called *alba splendens*, but in point of beauty this compares unfavourably with *rosea splendens*.

LAYIA.—Here is an annual that I confess I have never grown. However, I have seen it growing, and have, I think, been told all there is to tell about it, and so, for the information of those who would care to give Layia a trial, I will pass on what I know. Whether the fact that it comes from California would interest you or not is perhaps beside the point. It grows some ten or twelve inches high and has yellow flowers, which seem too large for the leaves. *Layia elegans* is its full name, and it boasts the possession of a white-flowered variety. Need I say that it is sown where the plants are to bloom?

LEPTOSIPHON.—I do not know, not having the courage to count, how many low-growing annuals I may have already recommended to the reader as perfect plants with which to form an edging, but *Leptosiphon* should only be one of the number. Its extreme dwarfness may recommend it to those who are fond of showy flowers, for it grows only one or four inches high and is practically only a carpeting plant. Though so tiny a member of the great flower family, it has several varieties, with blossoms respectively of white, rose, and yellow. Sow where flowers are wanted.

LEPTOSYNE.—Hardy annuals doubtless owe much of their popularity to the fact that they come quickly from seed to blossom. If, then, we praise hardy annuals generally on this account, what shall we say of *Leptosyne*, which perhaps loses least time of any in its short journey from seed to flowering plant? It is reported to come into blossom within five weeks from seed-sowing and "the golden yellow flowers continue in perfection for a long period." In spite of the little time it takes to do it, it manages to reach a height of twelve to eighteen inches.

LIMNANTHES DOUGLASI.—Only six inches high, yet a plant of striking merit, first because it is one of the hardiest of all annuals—and there are degrees of hardiness even among these—secondly, because its flowers are fragrant. Owing to its ability to withstand anything the gods may send in the way of fair weather or foul, it is, as one would imagine, particularly well suited to autumn sowing for spring blooming. Its blooms are of yellow and white. Still another recommendation: it is a flower that bees love to visit.

LINARIA (Toadflax).—My earliest recollections of this flower are bound up with memories of pleasant botanising days, when I was endeavouring to get together a collection of wild flowers that should eclipse those of all my comrades—days when I used to come across the quaint, yet beautiful, flowers of the common wild Toadflax by the side of the "silvery Thames." Perhaps, for this reason I never like to be without a few plants of the annual Toadflax; possibly also because it is a most convenient flower for one who is so busy writing about flowers that he has not so much time to grow them as he would like. One may have the annual Toadflax in mauve, pink, crimson, and other shades, on slender leafy stems about twelve or fifteen inches high. The flowers are tiny, and they resemble nothing so much as a Snapdragon in miniature. They are freely produced and not at all fugitive. They need only to be sown where they are to bloom, and this time I shall not insist upon a rigorous thinning out, since as the plants are of slender growth they support each other very nicely if left finally at three or four inches apart.

LINUM (Flax).—It seems scarcely necessary that I should say much in praise of the annual Scarlet Flax, for everyone knows this grand old garden flower, that produces brilliant bright red, saucer-shaped blossoms on the slenderest of stems some twelve inches high. Of this, too, I have early and pleasant recollections. I can see it now as I first made its acquaintance, smothering the prosaic vine borders in the Royal Gardens, Windsor, with sheets of brilliant bloom; and what more exquisite ground carpet could even such an aristocrat among fruit trees as the vine wish to have! If you wish for a wide stretch of blossom—and only thus is the Scarlet Flax seen at its best—you sow the seed broadcast, and do not thin out the seedlings. If a person of more precise habit, you sow the seeds carefully, and if the seedlings are too thick, thin them out so that they are two or three inches apart. This, too, is a slender grower, and one plant loves the close company of another. *Grandiflorum rubrum* is the high-sounding name that florists give to the Scarlet Flax, and although there are others, I should be sorry to mention them in the same connection.

LUPINUS (Lupin).—The perennial Lupin is a favourite with everyone, and it is so readily raised from seed, as may be gathered from the notes on p. 46, that the annual Lupins are somewhat overshadowed and scarcely receive their proper meed of praise. Not that I would pitch my song in too high a key, for I scarcely believe the



EARLY SPRING AT MADRESFIELD COURT, WORCESTERSHIRE. THE BANKS OF
THE DELL ARE COVERED WITH LONDON PRIDE (*SAXIFRAGA UMBROSA*).

subject is one that warrants it, for in the same short space of time that the annual Lupin sprouts, blossoms, and fades, the perennial Lupin comes also to beauty. However, as we are now on the subject of annuals, let me give the annual Lupins their due. There is none to excel the variety known as *Hartwegii*, of which the blossoms are blue and white. In well-tilled soil the flower stems grow quite two feet high. One may also have yellow annual Lupins, and others in various shades of blue. One has only to sow the seeds in March where the plants are to bloom.

MALOE.—This is a showy annual, growing about two feet high, with blossoms of crimson or white, of Mallow-like form. Perhaps I am biased, for I cannot help comparing it with the Rose Mallow, of which I have spoken so highly. The gardener scarcely wants them both, and of the two I prefer the latter. Let me, though, put this much to the credit of the Maloe: that while its blossoms are really red, if not quite crimson, those of the Rose Mallow are only rose-coloured.

MALVA MOSCHATA (*Musk Mallow*).—This is a British wild flower, but so beautiful as to be worthy of garden room. It is a hardy perennial; but, partly because I have not included it in my list of hardy perennials, partly for the reason that it will flower the same year in which it is sown, I include it in the list of hardy annuals. Seed should be sown in the greenhouse in March; then if the plants are put out of doors in April they will bloom in August.

MATHIOLA RICORNIS (*Night-Scented Stock*).—In the opinion of many, evening in the garden is the most entrancing time of all. We should therefore preserve with special care those plants that fill the garden with fragrance when their flowers may be no longer seen. Such is the Night-Scented Stock, whose pretty lilac pink flowers scent the air so freely as fully to compensate for whatever lack of beauty may be theirs in the broad daylight. It is a charming little plant for edging, or even for sowing broadcast in odd places in the garden. It grows from six to nine inches high.

MESEMBRYANTHEMUM (*Ice Plant*).—There is only one annual amongst the quaint Ice plants, whose comparative rarity in gardens is probably explained by the fact that only in warm, sheltered gardens near the south coast are they hardy enough to withstand the winter. Those who care to grow the Ice plant at all will probably choose the annual now mentioned, *crystallinum*. Its chief claim to merit is found in the leaves, which are covered with crystal-like knobs and are often used for garnishing.

NASTURTIIUM.—There is probably a wide difference of opinion as to the merits, at any rate, of the Climbing Nasturtium—a most presumptuous plant; a plant that if given an ell will take a yard, or, in other words, if sown one year will do its best to fill your garden the next. Not content with filling your own garden, it will find holes in the fence that before you had never seen, and play havoc in your neighbour's border. But it has its good points, as most flowers have.

If you wish to clothe an ugly fence quickly, cover a rough trellis, hide the wall of a prosaic outbuilding, or to make sure of having blossom in your garden when the frosts come, then the Climbing Nasturtium is the plant for you. It would be tedious to name all the varieties that florists now list. I will merely say that the colours that preponderate are yellow and red, but of these there are many shades. Of the Dwarf Nasturtiums I have a different tale to tell, especially of the new brilliantly coloured compact sorts familiarly known as Tom Thumb varieties. They make splendid little tufts and last long in bloom, and, in common with the climbing sorts, they have the merit or demerit, as you may choose to regard it, of sowing themselves very freely. But they are easily kept within bounds, and that they are so tenacious of life is no fault of theirs. King of Tom Thumbs is, I think, the finest of the lot; it is compact even amongst compact varieties; it has handsome dark green leaves and brilliant crimson flowers. If you would have further varieties, grow Pearl, which is self-descriptive; Ladybird (scarlet and yellow); and Salmon Pink, which is quite a distinct shade amongst Nasturtiums.

NEMOPHILA.—This is a very old garden flower, but it is rarely seen at its best, because the grower will not give it a proper chance. It will, if given room to grow, make a patch quite two feet across. If crowded so that it jostles its fellow seedlings it grows weak and spindly, languishing for light and air; then it is a weedy thing, with a few blue flowers at the top. As many as six varieties are catalogued, but the one most commonly grown is the blue insignis, and it is, I think, the best of all, though some may like atomaria, which has blue and white flowers. There is nothing to tell about its cultivation save to say that the seed is sown where the flowers are required, and that each plant should be given the room it needs.

NIGELLA (*Love-in-a-Mist*).—There is only one Love-in-a-Mist worth growing nowadays, and that is the variety Miss Jekyll—one that was raised, I believe, or at least selected, by the distinguished gardener after whom it is named. Its flowers are of a richer, deeper blue than the old Love-in-a-Mist. It is needless to draw attention to the exquisite charm and distinct appearance of this favourite old flower, each blossom encircled by a crown of elegant little leaves. It is one of the best hardy annuals for autumn sowing, and Mrs. Earle tells how she sows this and *Gypsophila* broadcast in September, and how in spring the two kinds commingle and form a fair forest of bloom. For summer flowering, seed is sown in March in the open border and the seedlings are not disturbed—merely thinned out to four or five inches apart.

OENOTHERA (*Evening Primrose*).—It is a fond delusion, that one does not like to relinquish, that the Evening Primroses open only at evening time; but, as a matter of cold, hard fact, many of them are wide awake during the day. Among the Evening Primroses there are several hardy annuals, but I would warn the reader that they are

neither such showy nor such satisfactory plants as the perennials. One of the best of the hardy annuals is *triloba*, which, although growing only a few inches high, has large yellow flowers. *Drummondii*, with comparatively large yellow flowers, is also of low growth, ten or twelve inches representing the height of its capacity. One called *bistorta Veitchii* is a half-hardy annual growing about the same height, but it has the distinction of having its yellow flowers spotted with crimson.

PAPAYER (Poppy).—Among the annual Poppies, none has gained such wide popularity as the Shirley Poppy, first given to the flower world by the Rev. W. Wilks, vicar of Shirley, and secretary of the Royal Horticultural Society. Only by persistent and careful selection was the Shirley Poppy perfected, and flower lovers owe a deep debt of gratitude to Mr. Wilks. Even now new forms are constantly being selected, and a packet of seed will give many varieties. There is probably no annual plant to surpass the Shirley Poppy for general usefulness. There are, however, many other sorts that the amateur, longing for the charm that attaches to variety, may grow. He may, if he wish, even grow the double Shirley Poppy, although I have nothing to say in its favour; it lacks altogether the grace and fascination that clings to the single form. The Peacock Poppy (scarlet with dark markings), the Tulip Poppy (rich scarlet), and the Corn Poppy (with orange-red colouring), as well as the *Ranunculus*-flowered Poppy (with double flowers in many shades of colour)—all these the amateur may grow and still not exhaust the list. Among the giant forms of the Opium Poppy are many handsome flowers, but they lack the persistent flowering quality that attaches to the Shirley Poppy. They are brilliant while they last; but, alas! their time is only short. However, those who can afford to pull them up as soon as they are over and plant something else in their place should certainly not fail to grow a few groups of them, for there is nothing more showy in the border at the time. I will only mention two others, although there are many—*i.e.* Cardinal, with large double scarlet blooms on stems some two feet high, and the White Swan, its prototype in white.

PHACELIA.—There are many annual flowers better worth cultivating than this; but the blossoms are blue, and blue, as I have mentioned before, is a colour of such comparative rarity that the garden lover should know in which plants to find it. Two sorts are commonly grown—*campanularia* and *tanacetifolia*. While the latter will reach a height of eighteen inches, the former is only half as high. The seeds are sown out of doors in March where the plants are to bloom.

PLATYSTEMON CALIFORNICUS.—This is an attractive little hardy annual with pale yellow blooms. In the mass it makes a brave show, as the tufts are thickly covered with flowers. It is quite a useful little plant to sow in the autumn for spring blooming, although more commonly sown perhaps in March for summer flowers.

POLYGONUM.—The Polygonums are not, as a rule, choice garden plants, but there is at least one annual variety, listed under the name of Sutton's Ruby Gem, which is well worth growing in the border. It is a variety of *Polygonum persicaria*. It makes a pretty little branching bush, about two feet high, and in summer bears its deep red flowers very freely.

RESEDA (*Mignonette*).—Familiar as *Mignonette* is, even on the lips of lisping children, it is a plant that puzzles even sometimes the grown-ups. And why? Simply because the *Mignonette* is a wilful flower with pronounced likes and dislikes. Chief amongst its likes is a firm soil, and it is also very grateful for that in which lime rubble is freely mixed. Its dislikes are pronounced, chiefly in the direction of a loose soil and one that is heavy and ill-dug. Now shall *Mignonette* growing have no disappointment in store for you. Sow the seed out of doors in March where the plants are to bloom; scarcely cover it at all; and as to the distance apart to leave each plant, take a lesson from self-sown seedlings. Watch them and see the height and width to which they grow. Eighteen inches high and twelve inches through is not an exaggerated estimate of the size of well-grown *Mignonette*. If one asked the average amateur what colour were the flowers of *Mignonette*, likely enough he would be unable to say. Most of them are of a neutral tint, and the mind retains no distinct impression of colour, yet the catalogues describe them as yellow, red, and white, and who am I to say that they are not correct? Judge for yourself, reader, whether these descriptions are true or not by purchasing a packet of each of Giant White, Giant Red, and Giant Yellow. Moreover, do not forget the Matchet *Mignonette*; it is one of the favourite kinds.

SANVITALIA PROCUMBENS.—This is a showy little annual, with yellow, dark-centred flowers, which have a particularly bright appearance. It grows only about six inches high, and makes quite an attractive little edging. There is a double form, and this, too, should be grown. Both flower freely the whole summer through from seeds sown in March.

SAPONARIA (*Soapwort*).—The Calabrian Soapwort is a pretty little pink-flowered annual, that may be either sown in March for summer flowering or in autumn for spring blossom. It is of dwarf growth and flowers abundantly, so that as a ground covering for spring flower beds it is not at all to be despised. One called *vacaria* is a much bolder plant, although despite its two feet of height it is doubtful whether it is more useful than the other. Its merits are of a different order, and it is worth growing for its sprays of pink flowers for home decoration.

SCHIZOPETALON WALKERI.—There is a fascination about this little-grown annual that I think appeals to all who have made its acquaintance. It grows about eight or ten inches high, and bears freely of its fairly large, white, and deliciously scented flowers; in

fact, it is often grown for its saving grace of fragrance. It is a hardy annual, and needs only to be sown where bloom is wanted.

SENECIO ELEGANS (*Groundsel*).—The annual form of this plant, which belongs to the Groundsel family, is more often met with perhaps under the name *Jacobea*. Its several varieties, in various colours, are really attractive hardy annuals, and much prized, both in the border and for cutting. One of the best is the double purple. Other colours obtainable in the single-flowered varieties are rose, white, and crimson. They do not grow much higher than nine or ten inches, but if in good soil flower freely for a long time.

SILENE (*Catchfly*).—There are several varieties of the annual *Catchfly*, with blooms of varied colouring. The dwarf forms are particularly suited for autumn sowing, and it is for their value in the spring garden that I would recommend their being used, although, of course, they may be sown in March if summer plants are wanted; but they scarcely hold their own with many other plants of summer.

SPECULARIA SPECULUM (*Venus' Looking Glass*).—This little plant certainly does not suffer from lack of names. If its name had much to do with a flower's popularity, as some maintain it has, then surely the *Specularia* should be widely grown; but, as a matter of fact, it is not. It grows only eight or nine inches high, and has bell-like flowers of violet purple colouring. It is very showy, and, moreover, its flowers are of a colour that is by no means common amongst annuals. There is also a white-flowered variety.

TROPAEOLUM CANARIENSE (*Canary Creeper*).—It seems needless to say much about flowers that everyone knows as well as I. At any rate, I can say nothing new, and will content myself with saying little that is old. Often the best plants are those that are self-sown, but unfortunately they do not always come up exactly where one wants them. This is probably not surpassed for covering poles, and if trained up strings on a bare fence it covers the latter with light green leaves, and the quaint yellow flowers bloom for weeks together from July onwards. If such a common plant is worth growing well, the best plan is to sow the seeds in a greenhouse in March, putting each one singly in a small pot, planting out of doors in early May. Otherwise the seeds are sown out of doors in late March.

VIRGINIAN STOCK (*Malcomia*).—Probably no hardy annual is more widely grown than this. Indeed, it would scarcely be correct to say that it is grown, for if any plant ever grew itself, then it is certainly this. It is, however, well worth bearing in mind that those who have the ground well prepared, the surface made fine, and sow the seeds thinly will ensure a carpet of blossom the whole summer through; while those who neglect these little details will have weedy-looking plants that will no sooner have started to blossom than they make ready to die. One may have red, white, crimson, and even yellow *Virginian Stock*. Though the crimson-coloured variety is by far the showiest of all.

CHAPTER XII

VIOLETS, VIOLAS, AND PANSIES

Violets.—The Violet is not very fastidious as to soil, when grown out of doors, although it needs to be well dug, and if enriched with manure the flowers will be all the finer. The wild Violet is often found on moist, shady banks, in anything but an ideal position for flowering plants. Many inexperienced growers thus conclude that any position and any soil are good enough for the Violet when grown in the garden. It is true that Violets may be naturalised in odd corners, in shady places, on the edge of paths; but while the plants will grow there, they will produce only comparatively poor blossoms. To obtain good Violets it is necessary to give them good cultivation, and for cutting for home use the stems should be of fair length. There are now some particularly handsome Violets, with large flowers on stems 6 or 8 inches long or more, but unfortunately they have little or no scent. Most cultivators find that although the Violet grows chiefly in the shade, an open, sunny position is best for it in the garden. Others pin their faith on a border facing west, so perhaps there is not very much in it. This much is clear, that in a hot, dry position—as, for instance, at the foot of a wall facing south—the plants are most likely to be attacked by that most troublesome of insect pests, the red spider—a pest that has an unusual liking for the Violet.

The best time to make a plantation of Violets is May, and whether a border facing west or south or south-west is chosen, it probably does not much matter; while the shelter of a wall is bad, that of a hedge or clump of trees is good. The Violet increases itself, like the Strawberry, from runners, and if these are pegged down early in April they will be rooted and ready for planting out separately in May. Put them out 12 to 15 inches apart in a border previously prepared. The only attention needed during the summer months is to keep down all weeds and the surface soil loose by constant hoeing; to cut off all runners that appear, and to water the

plants frequently in hot, dry weather. Another method commonly practised is to divide the roots; this is also carried out in April, choosing only the best and youngest crowns, as the divisions are called, and planting these separately, as for the rooted runners. It is necessary to pinch off all runners that make their appearance during the summer so that the plants may grow as vigorously as possible. During the summer Violets are very subject to the attacks of that pernicious little insect called red spider, and the best way to combat attacks is to see that the plants are well supplied with water and to syringe them every evening in hot weather, using weak soot-water for this purpose, say, once a week. By September they will have made fine plants, and will then be ready for transplanting into frames, there to produce a crop of flowers throughout the winter if these are desired. If not, the Violets will naturally be left to bloom where they are planted out of doors, which they will do possibly in mild weather during winter, and certainly during early spring.

Violets in Frames.—In many gardens Violets are grown in frames that have been used for summer crops of Cucumbers and Melons; the advantage of this is that the frame is already partially filled with mild heating material; if, however, such facilities do not exist, begin to fill the frames by putting in material for drainage. An amateur who gets excellent results uses old vegetable refuse for this purpose; this he covers with strawy manure, and then fills the frame to within a few inches of the glass with a soil mixture of leaf mould and loam in equal proportions, mixing with it a little old soot and sand or mortar rubble. Perhaps even a better way, and one that is commonly practised where large numbers of Violets are grown for winter, is to make up a bed of leaves to within 15 or 18 inches of the glass. The prepared soil to the depth of 10 or 12 inches is then placed on the leaves. The frames should be in a sunny position, so that they may get all the light possible during the winter. It is most necessary to have the plants near the glass, with their leaves not more than an inch or two below. If a fresh bed is made up it will naturally sink a little, so that when the plants are put in the leaves should touch the glass. Both the bed of leaves and the soil should be made firm. The plants are then put in about 8 inches apart. Fresh growth will soon begin, aided by the slight bottom heat from the bed of leaves or manure beneath. Success can only follow.

when the plants are treated as hardily as possible. Throughout September and, in fact, until there is danger of frost, the plants should be fully exposed, the glass lights of the frame being left off altogether except, of course, during heavy rain. Even during wet weather all possible fresh air should be given by tilting the lights back and front. If there are hot water pipes in the frame it is an advantage, not so much for the purpose of keeping the plants warm as for keeping the atmosphere of the frame dry; any attempt at forcing them by means of heat is altogether inimical to success. During frosty weather protection is easily afforded by means of mats. When the frame is unheated, the chief cause of failure is found in the "damping off" of the plants, which is most likely to occur during the period of dull, damp weather which may be expected, as a rule, in November and December. During such a time, watering must be carried out with the greatest care; it should only be done when the soil appears moderately, though not quite, dry; it is essential not to spill the water all over the leaves, otherwise these will be most likely to decay, and an epidemic of "damping off" may set in. The Violet Rust, a disease which attacks Violets, also flourishes in a damp atmosphere, so this is what the grower must avoid; if the plants are given water when planted, they will not need much more between October and February, although naturally they must not be allowed to suffer through want of it. Choose a fine day for watering, and apply the water in the morning. If the grower takes care to give the Violets all the air possible during mild weather, even pulling the lights right off on a fine day, there is no reason why he should not be able to gather Violets all through the winter. Make it a rule to pick off all dead and decayed leaves.

Varieties to be recommended for outdoor cultivation are:—*Single*: Princess of Wales, purple blue, large (Princess Beatrice, The Czar, and California are very similar); Admiral Avellan, reddish mauve; White Czar, white; La France, violet blue; Rose Perle, pale rose; Sulphurea, primrose yellow. *Double*: Comte de Brazza, white; Marie Louise, pale mauve blue; Lady Hume Campbell, pale blue; Neapolitan, lavender blue; and Mrs. J. J. Astor, pale rose. The single varieties thrive best out of doors. Some of the best for growing in frames to supply winter blossom are Marie Louise, Comte de Brazza, Neapolitan, Princess of Wales, Lady Hume Campbell, and Mrs. Astor.



MASSSES OF FLOWER IN THE ROCK GARDEN.

Violas.—The Viola or Tufted Pansy is one of the chief favourites among garden flowers, and may be considered indispensable to every garden, whether large or small. This class of Pansy is distinguished by its close tufted habit, that makes it particularly suited to garden decoration; at least, the best of the bedding varieties are so distinguished. Some sorts are grown chiefly for exhibition and are not so valuable for garden decoration. I use Tufted Pansies exclusively for covering the surface soil of my Rose beds, and as far as my experience goes, there is nothing to equal them for this purpose. They thrive best in an open position; if grown in the shade the tufts lose their compact habit of growth, become straggling, and do not bloom so freely. The finest masses of bloom are given by plants two years and three years old; they begin to bloom in April, and are a glorious sight until about July. By then, however, they have become giant tufts 18 inches or more across, and during late summer they certainly get somewhat untidy, and flowers become scarcer every week after July. They get so untidy that they have to be cut back, and although this cutting back provides some admirable young growths for taking as cuttings the plants do not again yield much bloom that summer. Now plants that are raised from cuttings the year previous do not come into bloom so early as the two-year- and three-year-old plants, but they have this advantage, that they remain neat until late in the season, and continue to bloom all the time. It should, however, be said that neither the young plants nor the old ones will be seen at their best if seed-pods are allowed to form; all fading flowers should be carefully removed. Seed forms very readily, and unless dead blooms are taken off the blossoming will be seriously interfered with. I advise all amateurs to rely upon young plants (from cuttings taken the previous summer) for furnishing their Rose beds or for planting beds or borders that are to be kept neat throughout the summer.

Although Violas will flourish in any ordinary garden soil except that which is of a heavy clayey nature, they thrive best in one that is moderately light, and greatly appreciate leaf-soil which should, if it can be procured, be mixed with the soil before planting. Cuttings may be taken any time from the end of July until the end of September, but amateurs will find that those taken at the end of July give the best results, and cause the least trouble. They root readily in a

little bed of sandy soil made up on a shady border if covered with a bell-glass or handlight ; it is best to water them through a can with a rose on the spout, when put in, then an occasional syringing will give them all the moisture they need until roots are formed, which will be in about three or four weeks. The best cuttings are those from growths that spring up in the middle of the flowering plants, and for this purpose the old plants come in very useful, because after they have been cut back, owing to their untidy appearance, fresh young shoots quickly spring up, and these are the growths to choose for cuttings. Often they may be selected with a few roots already attached, and these should, if sturdy, be given preference. Those that are not rooted are prepared as cuttings by being cut through below a joint about two inches from the apex, the two lower leaves being also cut off. Take care to insert the cuttings firmly in the soil. Some growers keep a special bed of plants for the purpose of providing cuttings. This is all very well, but it is not at all necessary. The amateur will find plenty of growths suitable for cuttings on the plants which are in bloom, but more especially on the older plants which have given their best flowers and are making fresh growth. When many hundreds, or even thousands, of plants are required, the method adopted is to make up a bed of soil in a cold frame ; half loam and half leafmould should be used ; it should be made moderately firm, and the surface reach to within 6 inches of the glass. In September, since sufficient cuttings would probably not be available before, cuttings are dibbled in, care being taken to make them firm at the base, a precaution that is necessary in inserting any kind of cutting. The frames are kept altogether closed for about a fortnight, then a little air may be given by slightly tilting the light at the back. During hot sunshine, which is not at all unusual in late September and early October, slight shading must be given, otherwise the plants may be spoilt. In a few weeks the cuttings will possess roots, and they may be given plenty of air on all favourable occasions throughout the winter. In fact the glass lights should be taken off, except in cold or wet weather. It should not be forgotten that the Viola is a hardy plant, and the cuttings merely need protection from heavy rains and severe frosts. An increase of stock is also readily effected by dividing the plants in October—each clump may be pulled into numerous pieces. Care will, of course, be taken to see that each is pro-

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vided with roots. They may then be planted directly where they are to flower the following year. Plants raised in this way will begin to bloom in April, and by the end of July will have passed their best.



Viola cutting prepared in the ordinary way.

Cutting with roots already attached.

There are now varieties innumerable; the following are the varieties that I grow:—Archie Grant, purple; Maggie Mott, light blue; J. B. Riding, crimson purple; Primrose Dame, primrose colour; Seagull, white; Golden Sovereign, golden; Blue Cloud, white with blue edge; Kitty Bell, lavender; True Blue, dark blue. Others to be recommended are:—Countess of Eglinton, purple and white; Duchess of Norfolk, cream white; Edina, dark blue; Florizel, lilac; General Baden Powell, perhaps the best rich yellow; Moseley Perfection, yellow; Bronze King, bronze; Mrs. Chichester, white with mauve margin; Lady Clonbrock, reddish; Rose, rose colour; Sunset, yellow and reddish; Swan, white; Wm. Welsh, yellow; Councillor Waters, indigo blue; Chocolate, reddish brown; Ernest Needham, white with purplish margin; Miss Audrie, pale yellow; and Darkey, almost black.



Type of Viola cutting that should be avoided. It has flowers, and the stem is hollow.

THE FANCY PANSY.—The Fancy or Belgian Pansy is, as a rule, larger than the Show Pansy and more robust. Its chief "points," from the florist's view, are as follow: Circular, flat, velvety petals closely overlapping, orange-coloured eye, large, deep-coloured blotch on the bottom petal extending to the side ones; the remainder of the flower being white, yellow, purple, crimson or intermediate

tint; sometimes the flowers are flaked, or include several shades of colour. Rich colouring is one of the features of a fancy Pansy, and size is also important. The name of French or Belgian Pansy clings to this section from the fact that it is supposed to have originated in Belgium or France between forty and fifty years ago. Since that time our home florists have greatly improved the flowers, especially florists in Scotland, where the fancy Pansies are held in high esteem. Most seedsmen offer a select strain of fancy Pansy seeds, while named sorts can be obtained from most of the hardy plant nurseries. The fancy Pansy is also sold in separate shades of colour.

CULTIVATION.—There are really four methods of increasing the fancy and show Pansies, namely, by seeds, cuttings, layering or pegging down the shoots, and by lifting and dividing the plants. The Pansy seeds very freely, and a large percentage of the seedlings come fairly true to colour. The seeds may be sown at any time of the year, early spring and June or July being the best seasons. Seeds of the commoner sorts may be sown outside on an open border, but the choice strains should always be carefully sown in shallow pans or boxes; when pots are used, at least half the pot must be filled with drainage. The soil used should be sifted, and light and sandy. Sow the seeds thinly, and just cover them with fine soil. The seeds will soon germinate in a cold frame or cool greenhouse. When sown during the summer, a frame facing north is desirable, this being cool and moist. If covered with a sheet of glass and paper, one watering with a fine "rose" on the spout of the watering-can is usually sufficient until the seedlings show. Then they must have all the light possible, but placed in such a position that very little sunlight reaches them. When large enough to handle, prick off the young seedlings, 3 inches apart, into boxes or pans. Use a compost of turfy soil, leafmould, and road grit or coarse sand. For two or three days the frame in which they are placed must be kept close and moist, following which a little air is admitted and gradually increased. When sown in early spring the plants will be ready by June to plant out in a prepared bed or border, 9 to 12 inches apart. Pansy roots travel freely in the soil in search of food, so that it must be well prepared. Light soils may be improved by adding some fairly heavy top-spit loam, wood ashes and cow manure, working in a little leaf mould round the plants when putting them in. To heavy soils add plenty of road scrapings, leafmould and wood ashes. All soils must be thoroughly dug for Pansies, and when planting make the soil round the plants moderately firm. Plants raised from choice strains of summer-sown seedlings would be better planted out in a cold frame for the winter only, however, having the lights on during bad weather. With the ordinary strains of Pansies the young plants may be placed in their flowering quarters during September and October.

Pansies are readily increased from cuttings. August and September

are the usual months to insert cuttings, as at that season there are plenty of young growths at the base, and these pieces make the best cuttings. Removed with care, many of these young shoots will be found to have roots already attached. In the case of choice and rare named sorts the cuttings should be inserted whenever the growths are available. The greatest success in rooting cuttings is obtained by devoting a frame or frames exclusively to them. The nearer the cuttings are to the glass within reason the better. Make up a bed of light, gritty soil, working in plenty of leafsoil, tread it fairly firm, and spread over the surface a thin layer of dry sand. Insert the cuttings in rows 3 inches apart, and 2 inches between the cuttings in the rows. Keep the frame closed and shaded for a few days after well watering the cuttings. Air can be gradually admitted as soon as it is seen most of them are rooted. The winter treatment will consist in removing the lights on all favourable occasions, and affording protection with mats during severe frosts.

Dividing the roots is best done in autumn; a good practice is to remove the old growths and flowers towards the end of July or August. This causes the plants to send up fresh shoots from the base, and during September each clump may be lifted and carefully parted into three, four, or more pieces: a large tuft will sometimes divide into twenty pieces.

Layering is generally only practised for the named sorts which do not grow and produce cuttings sufficiently freely. It is not necessary to cut the stem as when layering Carnations; simply place a little fresh soil round the plants and peg the stems down in this, covering them with soil. Layering may be done at any time during the summer, so that during September the layers can be severed from the parent plants and set out in a newly prepared bed.

It is necessary to top-dress the plants with rich soil two or three times during the summer, in mid-June and early August. The top-dressing material may consist of leaf mould, spent hotbed material and road sweepings, or any other fairly rich soil. Watering is desirable if the ground becomes at all dry on the surface, and a sprinkling overhead is very beneficial after a hot, dry day in summer. After flowering continually for a couple of months, the plants get rather weedy. Then is the time to top-dress the plants and remove the older growths, also all the blooms for a week or two. This will cause the plants to display renewed vigour and produce a brilliant late summer display of flowers. If it is desired to maintain a practically continuous display, the old flowers must be removed to prevent the production of seeds. Weak liquid manure given once or twice a week will further assist the plants when growth is active. With the named sorts a little more attention is desirable. During winter, for instance, a light placed over the bed will be an advantage, leaving the sides and ends open. The bloom buds should be removed from the small weak plants until growth improves. Any difficulty in obtaining cuttings may generally

be overcome by removing the buds. The most suitable situation for the plants is a cool, moist soil, rich and deep, where they will be sheltered from the mid-day sun. This is largely why the show and fancy Pansies are grown more extensively in the north of England and Scotland. Planting in the wrong position is largely the cause of failure with Pansies; nothing is more detrimental than a bright, sunny position and a dry, sandy soil.

THE SHOW PANSY.—The English or Show Pansies are divided into three sections by florists: Selfs, Yellow Grounds and White Grounds. The most important "points" of the flowers from a florist's standpoint are as follow: Edges, smooth; blooms, circular in outline; petals, thick, flat and overlapping closely; diameter of the blooms, about $1\frac{1}{2}$ inches; eye, orange-coloured, surrounded by a dark blotch. In the Self section the colour may be white, primrose, yellow, blue, purple, or almost black. The Yellow Grounds may have a light or rich yellow ground, with a belting of chocolate, bronze crimson, or purple. The belting in the White Grounds is often purple, occasionally blue or maroon, with a white or cream ground. To cultivate the Show section successfully, the plants require more care and attention than other sorts. It is in the successful cultivation of plants such as the Show Pansy that the amateur may show his skill. This section was formerly grown very extensively for exhibition. Named sorts are catalogued by nurserymen who deal in florists' flowers, and they may also be raised from seeds.

CHAPTER XIII

COLOUR IN FLOWER BORDERS

It is a mistake to regard a flower border, whether of perennials only, or bulbs and Roses also, as bound to be a combination of many different colours or a display of only one. There are beautiful effects to be gained by using two or three different colours only; indeed, the individual tints are probably best appreciated by this method. I remember seeing scarlet-copper Roses, chiefly L'Idéal, by the by, planted profusely in a long border on a lawn, with pale blue flowers below, and in places, between them, azure Delphiniums were a great feature, with summer blooming Forget-me-nots, *Tradescantia cærulea*, that is perhaps rather too dark to be perfect, the little-known beautiful *Gentiana Prizewalski*, occupying foreground positions where peat was incorporated, and giving a rare feast of its sky-blue flowers from June to September. Pale blue summer *Lobelia* was largely used for an edging, and the whole colour scheme was delightful.

Violet and Lemon will make up a border of genuine beauty if the varieties of plants are properly chosen. One of our finest violet blooming perennials is *Campanula glomerata dahurica*; it grows much taller than the 1 foot that catalogues give it, and continues blooming from early summer to autumn. *Nepeta violacea* is attractive, German Irises are the ideal shade, those of the old type seen in all gardens, while the named varieties, *La Gracieuse* and *Britannicus*, may be added. Violet Canterbury Bells would be reliable for obtaining bold masses of the right hue, so would Stocks and Asters, with many giant Pansies and varieties of *Violas*. The requisite clear lemon colour is best typified by the yellow Iceland Poppy; other flowers that give it are *Auricula Dusty Miller*, *Asphodelus luteus*, 3 feet tall; *Aquilegia chrysantha*, yellow Snapdragons and Carnations, *Alyssum saxatile*, *Allium Moly*, *Adonis pyrenaica*, *Achillea Eupatorium*, *Aconitum pyrenaicum*, *Centaurea macrocephala*, *Helenium Riverton Beauty*, *Iris germanica flavescens*, *Linum flavum*, Yellow Tree Lupin,

Oenothera Youngi, the double Primrose, *Primula sulphurea plena*, yellow cultivated Cowslips, *Ranunculus acris* fl. pl.; *Solidago speciosa*, a Golden Rod that is an especially constant bloomer; *Trollius europæus*, *Verbascum nigrum superbum*, with various *Violas*, *Dahlias*, and *Chrysanthemums*.

A border of pale colours strikes a novel note that is especially valuable in a large garden where gorgeous blossoms predominate, or in the close vicinity of a new red brick house. A white and pink combination even will not clash with the red of bricks if the following plants are chosen for the coloured ones: *Heuchera* Edge Hall, *Gypsophila repens monstrosa*, 9 inch; *Galega officinalis rosea*, *Dicentra spectabilis*, *Crucianella stylosa*, 6 inch; *Chrysanthemums* President Lefebvre, Pearlle, and M. G. Grunerwald; *Carnation* Duchess of Fife; *Aubrietia Moerheimi*; *Michaelmas Daisies* Maiden's Blush, and *cordifolius giganteus*; *Anemone japonica rosea*; double *Pyrethrums alba rosea*, Alice, or Empress Queen; single *Pyrethrum Maud*; *Phloxes*, *Fédora*, *conspicua*, and *Paul Fliche*.

Vivid vermilion and dark blue, if separated here and there by groups of garden variegated shrubs and plants, will make a colour of truly royal beauty. Among scarlet flowers are the Oriental Poppy, *Geums*, *Lychnis*, *Carnation*, *Monarda* Cambridge Scarlet, *Chelone barbata*, and *Potentillas*, with many *Dahlias* and *Begonias* to add in summer. Suitable deep blue flowering plants are *Centaurea montana*, *Monkshood*, *Campanula Van Houttei*, *Campanula turbinata*, *Michaelmas Daisy* *Arcturus*, *Anchusa italica*, *Delphiniums* Jupiter, Pedro Hamei, *Tritense* and *Carmen*, *Dracocephalum ruyschianum*, and *Lupinus polyphyllus*.

The inexperienced flower-lover is apt to imagine that all plants catalogued as having "red" bloom are fit to place side by side; this is a mistake fatal to harmony in the border. A Hollyhock may be red, but it is always crimson in tone; an Oriental Poppy, when described as red, is genuine scarlet; there are crimson as well as maroon Oriental Poppies, but they are always carefully explained. Now vermilion, scarlet, and what is known as blood-crimson always tone together, and may be freely used with gold and orange, as orange is but a deeper shade of gold, vermilion of orange. A true red flower is the scarlet *Geranium*, the Grenadin *Carnation*, the scarlet *Salvia*, the scarlet *Geum*, also *Lychnis haageana fulgens*, *Lychnis chalconica*, *Lobelia cardinalis*, *Delphinium nudicaule*, *Delphinium cardinale*, *Anemone fulgens*, and the

perennial Phloxes Embracement, Etna, Flambeau, Coquelicot, and Aurore may be included. Then there are real red Dahlias and Begonias, but the man who calls a China Aster or a Hyacinth scarlet, as some do, deserves to be rendered permanently colour-blind. A cool colour after a hot one is a safe rule, for they improve one another by contrast; a very vivid effect is always the result of massing snow-white flowers, not cream ones, against a scarlet stretch of the border; a softer effect is gained by massing lavender flowers in between the red and the white. Now let us consider what true lavender flowers are at our command for the purpose. The Sea Lavenders, *Statice latifolia*, *altaica*, and *suffruticosa*, *Scabiosa caucasica*, Jacob's Ladder, or *Polemonium cæruleum*, *Phlox canadensis* (an Alpine Phlox a foot tall), *Phlomis cashmeriana*, 2 feet, the blue Flax, *Linum perenne*, Lavender, the German Irises Clio, Cupid, and Bridesmaid, *Geranium grandiflorum*, Goat's Rue, or *Galega officinalis*, Sea Hollies in variety, *Erigeron grandiflorus elatior*, *Erigeron Villarsi*, *Echinops platylepis*, *Echinops sphærocephalus*, *Catananche cærulea*, a great many Campanulas, *Aubrietia græca*. If different lists of plants are consulted some of these flowers will be found described as blue, others as lilac, but all will tone well together, being actually of lavender-blue shades. It need scarcely be pointed out that there are many varieties of Michaelmas Daisies, Canterbury Bells, Hyacinths, China Asters, Pansies, and Violas suitable.

Rose pink and salmon pink are totally different, for the latter has a yellow tinge, being really the paler shade of vermillion, while the former has much blue in its colour; we all know how many bright pink Roses become almost mauve when fading, which is a proof of the blue element in this hue. The ordinary rose pink bedding *Geranium*, double or single, is a familiar example of this tint; it will always harmonise with blue, just because it partakes of blue itself. One of the prettiest of border groups consists of *Delphiniums* and *Anchusas*, with pink, double and single, *Pyrethrums* and *Silene pendula compacta* in front. Carmine may follow rose, then red purple, after which cream flowers have a soft effect. The various Meadow Sweets possess creamy floescence, so has *Bocconia cordata*, the Plume Poppy, and we have lots of suitable *Chrysanthemums*, Dahlias, Stocks, and Asters, Begonias, and Violas. A clever scheme of colour arrangement to introduce several conflicting hues in one border was

seen by the writer recently. It started with scarlet in the centre, continuing with lavender and white, on the left side, but on the right was planted a fine mass of *Bidens atrosanguinea*, the dusky maroon-black flower known as the Black Dahlia; some real Cactus Dahlias, of the maroon variety Matchless, came next, and, as space was ample, a short stretch of Purple Elm hedge closed in the background. In front were *Aubrietia Purple Robe*, *Centaurea montana purpurea*, *Helleborus punctatissimus*, black and darkest crimson Pansies. Against these maroon flowers deep purple ones came, offering just a slight variation in shade, such as *Iris germanica spectabilis*, *Geranium phœum*, 2 feet, *Aubrietia Bougainvillea*, the Michaelmas Daisy, *Pentstemon Cobœa*, and the Phlox Royal Purple, with Pansies and Violas. Next to these dark crimson flowers were massed, and so gradual was the shaded effect thus produced that there was no inartistic result, although the scarlet centre group was quite near. The crimson was followed by deep blue, then by pale azure, after which a white length of border merged into blush, and so on to pink.

Secrets of successful colour-mingling are to use plenty of white, cream, pale yellow, and variegated foliage plants at intervals, to remember that dwarf, profuse blooming plants give an even greater colour mass than do tall ones with fewer blossoms, and to place no plants the shades of which are not familiarly known; these could be grown on in the reserve garden until fully observed.

The grouping of herbaceous plants in their colours is a phase of hardy plant growing likely to become increasingly popular. It is, of course, in public parks and large gardens that the colour scheme can be developed most fully, but even in small borders pretty effects may be obtained. In the appended lists the colours are divided into five sections, namely, white, yellow, blue, pink and rose, and red and crimson. Thirteen sections may be made: White, pale yellow, bright yellow, orange, orange scarlet, scarlet, crimson, deep blue, light blue, pink, rose, purple and lavender or lilac. Although the lists contain hardy herbaceous perennials and annuals only with the exception of one or two bulbs which cannot be omitted, there are numerous other bulbs, Dahlias and biennials, that may be used if desired. The heights given are the average, although they will be found to vary in different soils and localities.

PINK HARDY FLOWERS

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HARDY PLANTS WITH PINK OR ROSE-COLOURED FLOWERS.

Botanical Name	Popular Name	Height in Feet	Stems of Colour	How to Propagate	When to Propagate	Season of Flowering
<i>Anemone japonica elegans</i>	Japanese Anemones	2-3	Soft rose	Division of rootstock or cut the thick fleshy roots	March	Aug.-Sept.
<i>Mont Rose</i>	"	"	Clear rose pink		"	"
<i>Queen Charlotte</i>	"	"	Delicate pink		"	"
<i>Althaea rosea flore pleno</i>	Double Pink	8-10	Various shades	Seeds	Jan. in heat, or May outside	July-Sept.
<i>J. T. Bennett Poë</i>	Hollyhock	"	Rich pink	Seeds	"	"
<i>Aquilegia vulgaris</i> , pink variety	Bennett Poë's Hollyhock	2-2½	Rose pink	Division of seeds or division	Nov.-Feb. Feb.-Mar.	May-July
<i>Aster Edna Merck</i>	Pink Columbine	3	Glistening rose	Seeds	Nov.-Feb.	Sept.
<i>Aster Lil Pardell</i>	Michaelmas	5	Rose pink	Division, Cuttings	Mar.-April	"
<i>Aster Perry's Favourite</i>	Daisies	2	Rich rose pink	Division of clumps	Nov.-Feb.	Aug.
<i>Astilbe Davidi</i>	David's Spiraea	3-4	Salmon pink	Division	June-July	April-May
<i>Bellis perennis Alice</i>	Double Pink	½	Flesh pink	"	Nov.-Feb.	June, July, Aug.
<i>Centaurea montana carnea</i>	Perennial Daisy	2	Rose purple	Cuttings or division of roots	Feb. and Mar.	Sept.-Oct.
<i>Chrysanthemum</i>	Cornflower	2½	Pearly pink	"	"	"
<i>Yimmie</i>	Border	2	Lilac mauve	"	"	"
<i>Lille</i>	<i>Chrysanthemums</i>	3	Rose pink	Layers or cuttings	End July-Aug.	July-Aug.
<i>Mme. Marie Masse</i>	"	"	Soft pink	"	"	"
<i>Perle Rose</i>	"	"	Deep pink	Pipings or cuttings	July-Aug.	June
<i>Dianthus caryophyllus</i> var. —	Border	2-2½	Salmon	"	"	"
<i>Anne Boleyn</i>	Carnations	"	Delicate pink	"	"	"
<i>Duchess of Fife</i>	"	"	Rose	"	"	"
<i>Lady Hermione</i>	"	"	Soft pink	"	"	"
<i>Mrs. Nicholson</i>	"	"	Lighter edge	"	"	"
<i>Dianthus plumarius</i>	Border Pink	½	Soft pink	"	"	"
<i>Clove Pink</i>	"	"	"	"	"	"
<i>Ernest Ledhams</i>	"	"	"	"	"	"

Botanical Name	Popular Name	Height in Feet	Shade of Colour	How to Propagate	When to Propagate	Season of Flowering
<i>Dianthus spectabilis</i> ..	..	2	Rose and white	Division	Oct.—Nov.	June—July
<i>Digitalis purpurea</i> ..	..	4—5	Rose purple	Seeds are best	April—Aug.	"
<i>Eremurus robustus</i> ..	..	4	Peach	Div. of roots	Sept.	"
<i>Galega officinalis</i> ..	..	3—4	Lilac pink	"	Nov.—Feb.	June—Aug.
<i>Geranium Endreel</i> ..	..	1½—2	Bright rose	"	"	June—July
<i>Gladiolus</i> :	..	3—5	Numerous shades	Offsets from bulbs	Lift end Sept.—Oct.	July—Sept.
<i>Childs</i> ..	..	"	"	"	Plant in Mar.—April	"
<i>Gandavensis</i> ..	..	"	"	"	"	"
<i>Kelwayi</i> ..	..	"	"	"	"	"
<i>Lemoinei</i> ..	..	"	"	"	"	"
<i>Nanceanus</i> ..	..	"	"	"	"	"
<i>Hesperis matronalis</i> ..	..	2—3	Lilac tint	Seeds	May—June	May—June
<i>Heutera</i> , <i>Edge Hall</i> variety	..	2	Rose	Division	Oct. or Mar.	June—Aug.
<i>Rormunds</i> ..	..	2	Coral pink	"	"	"
<i>Iacavillea Delavayi</i> ..	..	2½	Rose	Pieces of root	Sept.—Oct.	July
<i>Lathyrus latifolius</i> ..	..	6	"	Seeds	Mar.—May	July—Sept.
<i>Pink Beauty</i> ..	..	"	"	Division	Nov.—Feb.	"
<i>Lilium rubellum</i> ..	..	2—3	Rosy pink	Offsets from bulbs or seeds	Sept.	June
<i>spectosum magnificum</i> ..	..	3—3½	Rich, ruby rose	Offsets from bulbs	Oct.—Nov.	Aug.—Sept.
<i>Lupinus polyphyllus roseus</i> ..	..	3	Delicate rose pink	Division	Nov.—Feb.	June—July
<i>Lychnis viscaria splendens plena</i> ..	..	1½	Flery rose	"	"	"
<i>Lythrum Salicaria rosea</i> ..	..	4	Rose	"	"	July—Aug.
<i>Malva moschata</i> ..	..	2—3	Rose purple	Division	"	June—July
<i>Paeonia albiflora</i> varieties—	..	1½—2	Glowing rose	Seeds	May—June	"
<i>Argus</i> ..	..	2½	Rose pink, silv. edge	Division	Sept.—Oct.	June
<i>Dorothy</i> ..	..	2	Silvery pink	"	"	"
<i>Enchantress</i> ..	..	1½—2	Bluish pink	"	"	"
<i>Hermes</i> ..	..	"	"	"	"	"

PINK HARDY FLOWERS

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Botanical Name	Popular Name	Height in Feet	Shade of Colour	How to Propagate	When to Propagate	Season of Flowering
<i>Paeonia officinalis carnesceus plena</i>	Old Double Flesh Paeony	2-2½	Blush pink	Division	Sept.—Oct.	May
<i>rosa plena</i>	Old Double Rose Paeony	"	Full rose	"	"	"
<i>Paeonia sinensis</i> varieties—	Double Chinese Paeonies	3 2½-3	Blush pink Soft pink, light centre	"	"	June—July
<i>Arethusa</i>	"	"	Deep rose	"	"	"
<i>Ceres</i>	"	"	Rose-pink, light centre	"	"	"
<i>Charles Binder</i> ..	"	"	Blush rose	"	"	"
<i>Rosea Magna</i> ..	"	"	Silvery pink Salmon pink	"	"	"
<i>Virgile</i>	"	"	Silvery white, pink tint	"	"	"
<i>Papaver orientale</i> —	Oriental Poppies	3 2½	Rose, white centre	"	Mar.	June
<i>Blush Queen</i> ..	"	"	Rosy white	"	"	"
<i>Jeannie Mawson</i> ..	"	"	Salmon, light centre	"	"	"
<i>Silver Queen</i> ..	"	"	Light rose	"	"	"
<i>Phlox decussata</i> varieties—	Large-flowering Phlox	2 2½	Rose pink, deep eye	Division, non-flowering shoots	Nov.—Feb. April—May	Aug.—Oct.
<i>Atala</i>	"	"	"	Cuttings	Nov.—Feb. Summer	June—July
<i>Beranger</i>	"	"	"	"	"	"
<i>Mrs. Oliver</i>	"	"	"	"	"	"
<i>Paul Fliche</i>	"	"	"	"	"	"
<i>Phlox suffruticosa</i> , Mrs. Miller	Early-flowering Phlox	2	"	"	"	"
<i>Primula Sieboldi</i> , Fairy Queen	Japanese Primrose	1-1½	Light bluish pink	Division	"	April—May
<i>vulgaris rosea plena</i> ..	Double Primrose	1	Rose	"	"	"
<i>Pyrethrum Kreimhilda</i> ..	Double	2	Pale rose	"	Mar.	May—June, also in the autumn
<i>Ovid</i>	Pyrethrums	"	Rich rose	"	"	"
<i>Rupert</i>	"	"	Brilliant rose	"	"	"
<i>Agnes M. Kelway</i> ..	Single	2-2½	Rose-pink	"	"	"
<i>Hamlet</i>	Pyrethrums	"	Soft, true pink	"	"	"
<i>Mrs. Langtry</i> ..	"	"	Flesh	"	"	"

Botanical Name	Popular Name	Height in Feet	Shade of Colour	How to Propagate	When to Propagate	Season of Flowering
<i>Saponaria officinalis</i> fl. pl.	Double Soapwort	2	Rosy pink	Division	Nov.—Feb.	July—Sept.
<i>Sidalcea Listeri</i>	Lister's Mallow	3	Delicate pink	Cuttings	Spring	Nov.—Feb.
<i>Rosy Gem</i>	Hybrid Mallow	3½	Rosy pink	Cuttings	Nov.—Feb. Spring	July—Aug.

HARDY PLANTS WITH RED OR CRIMSON FLOWERS

Botanical Name	Popular Name	Height in Feet	Shade of Colour	How to Propagate	When to Propagate	Season of Flowering
<i>Anemone japonica</i> , Prince Heinrich	Japanese Windflower	2	Rosy crimson	Division, or pieces of root	Mar.	Aug.—Sept.
<i>Althaea rosea flore pleno</i> ..	Double Hollyhock	8—10	Crimson	Seeds	Jan. or May in heat	July—Sept.
<i>Armeria maritima lauchearia</i>	Thrill	1	Crimson	Preferable Division	After flowering or autumn	June—July
<i>Aster</i> , Mrs. J. F. Rayner ..	Michaelmas Daisy	5	Crimson	Division	Nov.—Feb.	Sept.—Oct.
<i>Bellis perennis</i> , Rob Roy ..	Double Red Daisy	1	Crimson scarlet	Cuttings	Spring	April—May
<i>Chrysanthemum</i> , Goscher's Crimson Maxim ..	Border Chrysanthemums	2½—3	Rich Crimson	Division	June—July	Sept.—Oct.
Nellie Blake ..	4	2½	Chestnut red	Cuttings	Spring	Oct.
<i>Delphinium cardinale</i> ..	Scarlet "Perennial Larkspur	3—4	Bright scarlet	division	Feb.—Mar.	July—Aug.
nudicaule ..	California Larkspur	1—2	Orange scarlet	Division or seeds	Mar.	June—July
<i>Dianthus caryophyllus</i> , var. — Andrew Campbell ..	Border Carnation	2—2½	Glowing crimson	"	Mar.	July—Aug.
Crimson Glove ..	Old Glove	"	Dark crimson	Layers or cuttings	End July—Aug.	July—Aug.
Gil Polo ..	Border	"	Rich crimson	"	"	"
Herbert J. Cutbush ..	"	"	Glowing scarlet	"	"	"
Lady Hindlip ..	"	"	Crimson scarlet	"	"	"

RED HARDY FLOWERS

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Botanical Name	Popular Name	Height in Feet	Shade of Colour	How to Propagate	When to Propagate	Season of Flowering
<i>Dianthus plumarius</i> Homer	Border Pinks	1	Dark crimson, fringed	Pipings or cuttings	July-Aug.	June
Old Chelsea	"	2-2½	Rose centre, rose red lacing	"	"	"
<i>Dietamnus Fraxinella</i>	Burning Bush	2	Purple red	Division of fleshy roots or seeds	Mar.	June-Aug.
<i>Echinacea purpurea</i>	Hedgehog Cone Flower	3	Crimson purple	Division	Nov.-Feb.	Sept.
<i>Gaillardia hybrida</i>	Hybrid Gaillardias	2-2½	Various shades	Seed, division, cuttings	May, Sept., Aug., respectively	Summer
<i>Germ chiloense</i>	Avens	2	Dazzling scarlet	Division	Nov.-Feb.	June-Sept.
Heidreichi	Heidreich's Avens	1	Orange red	"	"	"
<i>Gladiolus</i> , varieties of—	Hybrid Gladioli	3-5	Many varieties of various shades classed as Red Grounds	Offsets from bulbs	Lift end Sept.—Oct. Plant Mar.—April	July, Aug., Sept.
Childs	"	"	"	"	"	"
Gandavensis	"	"	"	"	"	"
Kelwayi	"	"	"	"	"	"
Lemoinei	"	"	"	"	"	"
Nanceanus	"	"	"	"	"	"
<i>Helenium autumnale cupreum</i>	Dwarf	1½-2	Crimson and gold	Division	Nov.-Feb.	Aug.-Sept.
striatum	Striped Sneezewort	5	Deep orange	"	"	"
<i>Heuchera brizoides</i>	Sneezewort	2	Red	"	Oct. or Mar.	June-Aug.
sanguinea	Alum Root	1½	Coral scarlet	"	"	"
<i>Kniphofia splendens</i>	"	1½	Crimson	"	"	"
corallina	Torch Lily or Red Hot Poker	5	Scarlet red	"	Mar.	Autumn
rufa	"	3	Bright coral scarlet	"	"	"
Pfitzeri	"	3	Coral red	"	"	Summer and autumn
Saundersi	"	4	Crimson	"	"	Autumn
Victor Lemoine	"	4-5	Orange shaded vermillion	"	"	"
	"		Bright red	"	"	Aug.-Sept.

Botanical Name	Popular Name	Height in Feet	Shade of Colour	How to Propagate	When to Propagate	Season of Flowering
<i>Lathyrus grandifolius</i>	Perennial Pea	4-6	Crimson	Division	Nov.—Feb.	June—Aug.
<i>L. rotundifolius</i>	Cherry-coloured Perennial Pea	5	Cherry red	"	"	"
<i>Lilium chalcedonicum</i>	Turk's Cap	3-4	Scarlet	Offsets from bulbs	For preference lift and re-plant in Oct.—Nov.	July
<i>L. elegans atrosanguineum</i>	Japanese Lily	1	Deep orange red	"	"	June
<i>L. pardalinum</i>	Leopard Lily	5-6	Orange, spotted crimson	"	"	July
<i>L. superbum</i>	Swamp Lily	"	Orange crimson	"	"	July—Aug.
<i>L. tigrinum splendens</i>	Tiger Lily	4	Rich orange red	"	"	Aug.—Sept.
<i>L. umbellatum</i>	Upright Lily	2	Orange red	"	"	June—July
<i>Lycchnis chalcidonica</i>	Jerusalem Cross	3	Scarlet	Division	Nov.—Feb.	July—Aug.
<i>Monarda didyma</i>	Bergamot	2½-3	Crimson scarlet	"	"	Summer
<i>Paeonia albiflora</i> varieties—	Single Chinese Paeonies	2-2½	Crimson	"	Sept.—Oct.	June
<i>Dreadnought</i>	"	"	Cherry red	"	"	"
<i>Ivanhoe</i>	"	"	Crimson	"	"	"
<i>Prince Bismarck</i>	"	"	Purple crimson	"	"	"
<i>Purpurea simplex</i>	"	2½	Rich crimson	"	"	May
<i>Paeonia officinalis rubra plena</i>	Old Double Crim. Paeony	"	"	"	"	"
<i>Paeonia sinensis</i> varieties—	Double Chinese Paeonies	2½-3	Crimson	"	"	June—July
<i>Buyeki</i>	"	"	Rich purple	"	"	"
<i>François Orliat</i>	"	"	Purple crimson	"	"	"
<i>Louis van Houtte</i>	"	"	Crimson	"	"	"
<i>Souvenir d'Auguste Mieliez</i>	"	3	Crimson carmine	"	"	"
<i>Paeonia tenuifolia</i> fl. pl.	Fennel-leaved Paeony	1½-2	Crimson	"	"	May
<i>Papaver orientale</i>	Oriental Poppy	2½-3	Rich scarlet	"	Mar.	June
<i>Grenadier</i>	"	3-3½	Glowing scarlet	"	"	"
<i>Royal scarlet</i>	"	3½	Orange scarlet	"	"	July
<i>Pentstemon barbatus</i>	Beard Tongue	3	Coral red	"	Nov.—Feb.	July—Aug.
<i>Phlox decussata</i> varieties—	Large-flowering Phlox	"	Orange scarlet	"	"	"
<i>Coquellefoot</i>	"	3½	Orange scarlet	"	"	"
<i>Etna</i>	"	"	Orange scarlet	"	"	"
<i>George A. Stroblein</i>	"	"	Orange scarlet, carmine eye	"	"	"
<i>coccinea</i>	"	"	Rich carmine	"	Nov.—Feb.	Aug.—Oct.
<i>Polygonum affine</i>	Knotted	1	Rich vermilion	"	April—May	"
<i>Polygonum affine</i>	"	1	Rose	Division, Cuttings	Mar.—April	July—Sept.

BLUE HARDY FLOWERS

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HARDY PLANTS WITH BLUE FLOWERS

Botanical Name	Popular Name	Height in Feet	Shade of Colour	How to Propagate	When to Propagate	Season of Flowering
Potentilla <i>Louis van Houtte</i>	Dble. Cinquefoil	1½-2½	Deep crimson	Division	Nov.—Feb.	Summer
Toussaint <i>Ouverture</i>	"	"	Velvety crimson	"	"	"
William <i>Rollison</i>	Red	1-1½	Orange-mahogany	Division, seeds	Summer	April—May
Primula <i>variabilis</i>	Japanese Primrose	1	Many rich shades	Division	Mar.—April	"
Sieboldi <i>Else Bryer</i>	"	2	Brilliant red, lighter centre	Division, seeds	Aug. Mar.—April	May, June, July
japonica	"	1-1½	Purple crimson	Division	Summer	April—May
vulgaris <i>crimson</i>	Double Crimson Primrose	1-1½	Dark	Division	Mar.	May—June, also in autumn if old flowers are cut off and plants watered
Pyrethrum <i>coccineum</i> varieties—	Double	2	Glowing crimson	Division of roots	"	
Captain <i>Nares</i>	Pyrethrums	"	Scarlet	"	"	
Lord <i>Rosebery</i>	"	"	Crimson scarlet	"	"	
Melton	Single	2-2½	Scarlet	"	"	
James <i>Kelway</i>	Pyrethrums	"	Crimson	"	"	
Merry <i>Hampton</i>	"	"	"	"	"	
Mrs. Bateman <i>Brown</i>	"	"	"	"	"	

Botanical Name	Popular Name	Height in Feet	Shade of Colour	How to Propagate	When to Propagate	Season of Flowering
Aconitum <i>autumnale</i>	Autumn-flowering Monkhood	5	Violet blue	Division of roots	Nov.—Feb.	Sept.—Oct.
Aconitum <i>Napellus</i>	Common Monkhood	3-5	Dark blue	"	"	June—Aug.
Achusa <i>italica</i> , Dropmore variety	Dropmore	4-5	Gentian blue	Cut up thick fleshy roots	Sept.—Oct.	"
Aquilegia <i>caerulea</i>	Alkanet Rocky Mountain Columbine	1½	Blue and white	Seeds or division	Feb.—Mar.	May, June, July
Aquilegia <i>glandulosa</i>	Siberian Columbine	1	Clear blue and white	"	"	"

Botanical Name	Popular Name	Height in Feet	Shade of Colour	How to Propagate	When to Propagate	Season of Flowering
<i>Aquilegia vulgaris</i> flore pleno	Double Blue Columbine	2-2½	Dark purple	Division	Feb.-Mar.	May, June, July
<i>Aster soris</i>	Michaelmas Daisy	"	Lavender blue	Division, cuttings	Nov.-Feb. Mar.-April	End Aug. Sept.
<i>anellus bessarabicus</i>	"	1½-2	Deep violet	"	"	Aug.-Sept. Sept.
<i>Beauty of Colwall</i> ..	Double Michaelmas Daisy	4-5	Lilac blue	"	"	"
<i>Hon. Edith Gibbs</i> ..	Michaelmas Daisy	4	Soft lilac	"	"	Sept.-Oct. Sept.
<i>Nancy</i>	"	3½	Clear blue	"	"	Sept.-Oct. Sept.
<i>Robert Parker</i> ..	"	5	Lavender blue	"	"	Sept.-Oct. Sept.
<i>Ryecroft Purple</i> ..	"	4½	Blue purple	"	"	Sept.-Oct. Sept.
<i>Aster subcaerulea</i> ..	Dwarf Starwort	1½	Bluish mauve	"	"	June-July
<i>Campanula glomerata</i>	Bellflower	"	Purple	Division	Autumn or spring	May-June
<i>lactiflora</i>	"	4-5	Pale lilac	"	"	July-Sept.
<i>latifolia macran</i> ..	"	3-5	Purple	Seed, division	May-Sept.	July-Sept.
<i>persicifolia</i>	Peach-leaved Bellflower	2-3	Soft blue	Division	Autumn or spring	June-Aug.
<i>ranunculoides</i> ..	Bellflower	3	Lilac purple	"	Nov.-Feb.	"
<i>Centaurea montana</i> ..	Perennial Cornflower or Blue Bottle	3	Violet	"	"	July-Sept.
<i>Delphinium hybridum</i>	Single & Double Delphiniums; named varieties in great number	4-6	Many shades of light and dark blue	"	Mar.	June-July
<i>Belladonna</i>	Perennial Larkspur	2-2½	Sky blue	"	"	"
<i>formosum</i>	"	2	Gentian blue	"	"	"
<i>grandiflorum</i>	Globe Thistle	3	Dark blue	"	"	"
<i>Echinops Ritro</i>	Gentianella	1-1½	Globose, blue	"	Nov.-Feb. Mar.	Aug.-Sept. April-June
<i>Gentiana acaulis</i>	Spring Gentian	1	Intense blue	"	"	April-May
<i>vena</i>	Crane's Bill	2	Brilliant blue	"	Nov.-Feb.	June-July
<i>Geranium fibricum</i> ..	Blue Gladiolus	3	Purple	Offsets from bulbs	Lift and Plant Oct. Mar.-April	July, Aug. Sept.
<i>Gladiolus, Blue Jay</i> ..	Hybrid Gladiolus	3-5	Varied shades	"	"	"
<i>Gladiolus, Mauve, Purple, Lilac</i>	"	"	"	"	"	"
Grounds						

BLUE HARDY FLOWERS

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Botanical Name	Popular Name	Height in Feet	Shade of Colour	How to Propagate	When to Propagate	Season of Flowering
<i>Iris amoena</i> s. stricta ..	Tall, Bearded Iris	1½-2½	Lilac, purple, etc.	Division	July-Aug.	June
<i>Iris germanica</i> var. <i>neglecta</i> var. ..	German Flag Tall, Bearded Iris	1½-2½	Violet, purple, etc. Lavender to purple	" "	" "	May June
<i>Iris pallida</i> var. <i>squellens</i> var. ..	" " "	2-3	Lilac, blue, purple Various shades	" "	" "	" "
<i>Linum perenne</i> ..	Perennial Flax	1½-3	Intense blue	Seeds	Nov.-Feb.	Summer
<i>Lupinus polyphyllus</i> ..	Lupin	3	Purplish blue	Division	Nov.-June	June-July
<i>Phlox decussata</i> varieties— <i>Le Mabdi</i> .. <i>Lord Raleigh</i> .. <i>Paul Bert</i> ..	Large-flowering Phlox " " "	3½ 2½ 3½	Violet blue Deep violet blue Dark violet Clear violet blue, light centre	Division Cuttings	Nov.-Feb. April-May	Aug.-Oct.
<i>Phlox divaricata</i> ..	Canadian Phlox	1	Lavender blue	Division, cuttings	Aug.	May-July
<i>Platycodon Mariel</i> ..	Chinese Balloon Flower	1-1½	Deep blue	Division of roots	Mar.	July-Aug.
<i>Polemonium caeruleum</i> ..	Greek Valerian	1½	Sky blue	" "	Oct.-Nov. Summer	May-July
<i>Primula denticulata</i> ..	Himalayan Primrose	1	Lilac	Division	" "	Mar.-May
<i>Primula vulgaris</i> var. ..	Wilson's Blue Primrose	1-1½	Deep, rich purple	Division or seeds	" "	Mar.-June
<i>Salvia virgata nemorosa</i> ..	Blue Sage	2-2½	Purple blue	Division	Nov.-Feb.	Aug.-Sept.
<i>Scabiosa caucasica</i> ..	Caucasian Scabiosa	2-3	Lilac blue	" "	" "	June-Aug.
<i>Statice latifolia</i> ..	Great Sea Lavender	2-2½	Lavender blue	" "	Autumn or spring	" "
<i>Tradescantia virginica</i> ..	Spiderwort	1½	Intense blue	" "	Feb.-Mar.	May-Sept.
<i>Veronica gentianoides</i> ..	Early-flowering Speedwell	"	Violet blue	" "	Aug.-Sept.	May-July
<i>Veronica longifolia</i> ..	Speedwell	2-3	Purple blue	" "	Nov.-Feb.	July-Sept.
<i>Viola archie-grantii</i> ..	Tufted Pansies	1	Bluish violet	Division, cuttings	" "	June-Aug.
<i>Viola archie-grantii</i> ..	" "	1	Indigo blue	" "	Aug.-Sept.	April-Sept.
<i>Viola archie-grantii</i> ..	" "	"	Heliotrope blue	" "	" "	" "
<i>Viola archie-grantii</i> ..	" "	"	Lilac blue	" "	" "	" "

HARDY PLANTS WITH YELLOW FLOWERS

Botanical Name	Popular Name	Height in Feet	Shade of Colour	How to Propagate	When to Propagate	Season of Flowering
<i>Achillea Eupatorium</i>	Golden Yarrow	3-4	Golden	Division	Nov.-Feb.	July-Sept.
<i>Alyssum saxatile</i>	Madwort	1	"	Cuttings	Aug.	Mar.-June
<i>Althæa rosea flore pleno</i>	Double Yellow Hollyhock	8-10	Pale yellow	Seeds	Jan. in heat ; May outside	July-Sept.
<i>Aquilegia chrysantha</i>	Yellow Columbine	2½	Primrose yellow	Seeds or division	Feb.-Mar.	May-July
<i>Aquilegia canadensis</i>	Canadian Columbine	"	Orange tipped red	"	"	"
<i>Buphthalmum speciosum</i>	Ox Eye	3-4	Golden orange	Division	Nov.-Feb.	July
<i>Centaurea macrocephala</i>	Great Knapweed	4	Golden	"	"	July-Sept.
<i>Chrysanthemum Carrie</i>	Border	2	Rich yellow	Cuttings or division of roots	Feb.-Mar.	Aug.-Sept.
<i>Chrysanthemum Harrie</i>	"	"	Golden yellow	"	"	Sept.-Oct.
<i>Chrysanthemum Maggie</i>	"	1½	Orange yellow	"	"	Oct.
<i>Coreopsis grandiflora</i>	Perennial	3	Deep yellow	Seeds for preference	May	Summer
<i>Coreopsis lanceolata</i>	Coreopsis	2½	Rich yellow	"	"	"
<i>Delphinium sulphureum</i>	Larkspur	3-5	Pale yellow	Division	Mar.	"
<i>Dianthus caryophyllus var.</i>	"	"	"	"	"	"
<i>Cecilia</i>	Border	2-2½	Clear yellow	Layer or cuttings	End July-Aug.	July-Aug.
<i>Daffodil</i>	Carnations	"	Rich yellow	"	"	"
<i>Germania</i>	"	"	Deep yellow	"	"	"
<i>Miss Audrey Campbell</i>	"	"	Clear yellow	"	"	"
<i>Digitalis</i>	Yellow Foxglove	3-4	Primrose	Seeds	May-June	June-July
<i>Eremurus Bungei</i>	King's Spear	2-3	Citron yellow	Division of tuberous roots, each with a crown	Sept.	"
<i>Gaillardia hybrida</i>	Hybrid Gaillardias	2-2½	Various	Seeds, division, cuttings	May-Sept. or Mar., and Aug., respectively	Summer
<i>Geum hybridum, Orange Queen</i>	Hybrid Avenas	2	Orange	Division	Nov.-Feb.	"
<i>Yellow Queen</i>	"	"	Clear yellow	"	"	"

YELLOW HARDY FLOWERS

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Botanical Name	Popular Name	Height in Feet	Shade of Colour	How to Propagate	When to Propagate	Season of Flowering
Gladiolus, Yellow Grounds..	Hybrid Gladiolus	3-5	Various shades	Spawn or off-sets from bulbs	Lift end Sept. - Oct. Plant Mar. - April	July - Sept.
Helenium autumnale var. pumilum ..	Sneeze wort Dwarf	6	Clear yellow	Division	Nov. - Feb. Spring	{ Aug. - Sept. Sept. - Oct.
Bolanderi ..	Bolander's Sneeze wort	2½	Yellow, dark centre	Cuttings	Nov. - Feb. Spring	July - Sept.
Hooperi ..	Hooper's Sneeze wort	"	Orange yellow	Division	Nov. - Feb. Spring	" - Sept.
Helianthus, Miss Mellich ..	Prairie Sneeze wort	5-6	Rich yellow	Division	Nov. - Feb. Spring	"
multiflorus Bouquet d'Or	Double Sunflower	4	Golden yellow	Division of thick roots	Nov. - Feb. Spring	"
maximus ..	Perennial Sunflower	6	Yellow	Division	"	Aug. - Oct.
Hemerocallis aurantiaca major	Japanese Sunflower	2	Orange yellow	"	"	"
Hemerocallis flava ..	Day Lily	2½	Yellow	"	Autumn or spring	July - Sept.
fulva fl. pl ..	Double Day Lily	"	Bronzy yellow	"	"	May - June June - Aug.
Kwanso fl. pl. ..	Bearded Yellow Flag	3	Bronzy orange	"	"	May - June
Iris flavescens ..	Dyer's Weed	2½	Soft yellow	"	July - Aug	Summer
Isatis glauca ..	Torch Lily or Red Hot Poker	4-5	Golden yellow	Svds Division of clumps	May - June Nov. - Feb. Mar.	Aug. - Sept.
Kniphofia, Lemon Queen ..	"	3	Lemon yellow	"	"	"
Ophir ..	"	4½	Orange yellow	"	"	"
Obelisque ..	"	4	Glistening yellow	"	"	"
Solfaterre ..	"	3	Clear yellow	"	"	"
Lilium elegans aurantiacum verum	Japanese Lily	1	Citron	Offsets from bulbs	Autumn	July - Aug.
Hansonii ..	Hanson's Lily	3-4	Golden yellow	"	Autumn or spring	June - July
pyrenaicum sulphureum	Pyrenean Lily	2	Yellow, black spots	"	Autumn	July
testaceum ..	Burmese Lily	5-6	Sulphur yellow	"	"	June Sept.
	Tawny Lily	3-4	Nankeen yellow	"	"	July

Botanical Name	Popular Name	Height in Feet	Shade of Colour	How to Propagate	When to Propagate	Season of Flowering
<i>Linum flavum</i>	Yellow Flax	1	Bright yellow	Cuttings or seeds	July—Aug.	Summer
<i>Mecanopsis cambrica</i> fl. pl.	Double Welsh Poppy	1-2	Orange yellow	Division or seeds	Mar.	June—July
<i>Oenothera fruticosa</i>	Fraser's Evening Primrose	1½-2	Golden yellow	Division	Nov.—Feb.	July—Sept.
<i>Papaver nudicaule</i>	Iceland Poppy	1	Bright yellow	Seeds are most satisfactory	Sown in July—Aug.	June—Sept.
<i>Potentilla Gloire de Nancy</i>	Double Cinquefoils	1½-2½	Deep yellow	Division	Nov.—Feb.	Summer
Mont d'Or	Yellow "	1½-2	Golden yellow	"	"	"
<i>Primula variabilis</i> variety ..	Polyanthus Double Yellow Primrose	1½-2	Canary yellow	Division, seeds	Summer Mar.—April	April—May
<i>vulgaris</i> , Cloth of Gold	Double Yellow Primrose	1½-2	Cream and yellow	Division	Summer	"
<i>sulphurea plena</i>	Sulphur Primrose	1½-2	Golden yellow	"	Nov.—Feb.	"
<i>Ranunculus acris</i> fl. pl. ..	Bachelor's Buttons	2½	Sulphur yellow	"	"	"
<i>Rudbeckia Autumn Glory</i> ..	Autumn Cone Flower	3	Rich golden yellow	"	Nov.—Feb.	Early summer
<i>laciniata</i> fl. pl.	Double Ragged Cone Flower	3	Double yellow	"	"	Sept.—Oct.
<i>marima</i>	Large Cone Flower	6	Golden, black centre	"	"	Aug.—Sept.
<i>speciosa</i>	Newman's Cone Flower	2	Yellow, black centre	"	"	July, Aug., Sept.
<i>Semecio clavatum</i>	Chinese Senecio	4	Golden yellow	Division, seeds	"	July—Sept.
<i>Solidago canadensis</i>	Golden Rod	5	Bright yellow	Division	May—June	Aug.—Sept.
<i>Tritonia crocosmiflora</i> vars.—						
Drap d'Or	Montbretias	2	Chrome yellow	Offsets	Nov.—Feb.	"
Rayon d'Or	"	"	Golden Primrose	"	Bulbs lifted in autumn and replanted in spring	July—Aug.
<i>Solisterne</i>	"	"		"		"

WHITE HARDY FLOWERS

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Botanical Name	Popular Name	Height in Feet	Shade of Colour	How to Propagate	When to Propagate	Season of Flowering
<i>Thalictrum angustifolium</i> ..	Meadow Rue	3-4	Soft yellow	Division	Nov.—Feb.	June—July
<i>Thalictrum glaucum</i> ..	Glaucous Meadow Rue	4-5	Golden yellow	"	"	July—Aug.
<i>Trollius asiaticus</i> & pl.	Globe Flower	2	Orange	"	Oct.	Spring and early summer
<i>Trollius caucasicus</i> , Orange Globe	"	2½	Glowing orange	"	"	"
<i>Trollius europaeus grandiflorus</i> ..	"	2	Soft yellow	"	"	"
<i>Trollius sibiricus</i> ..	"	2	Deep orange	"	"	"
<i>Trollius alba</i> ..	"	2	Clear yellow	"	"	"
<i>Viola</i> , Ardwell Gem	"Pansies or Garden	1	Primrose yellow	Division or cuttings	Aug.—Sept.	April—Sept.
<i>Viola Golden Sovereign</i>	Violas	1	Golden yellow	"	"	"
<i>Viola Primrose Dame</i>		1	Primrose	"	"	"

HARDY PLANTS WITH WHITE FLOWERS

Botanical Name	Popular Name	Height in Feet	Shade of Colour	How to Propagate	When to Propagate	Season of Flowering
<i>Achillea Ptarmica</i> , The Pearl	Doubt	2	Papery white	Division of roots	Nov.—Feb.	July—Sept.
<i>Aconitum Napellus album</i> ..	White Monkshood	3-5	Creamy white	"	"	June—Aug.
<i>Actaea spicata</i> ..	Baneberry	2	Ivory white	Seeds or division	"	July
<i>Althaea rosea flore albo pleno</i>	Double White Hollyhock	8-10	Papery white	Seeds	Jan. or May	July, Aug., Sept.
<i>Anemone japonica alba</i> ..	White Japanese Windflower	2-3	Pure white	Division of clumps or thick pieces of root	Mar.	Aug.—Sept.
<i>Anthriscum illiaco</i> ..	St. Bernard's Lily	2	Starry white	Division	Nov.—Feb.	June—July
<i>Aquilegia vulgaris alba</i> ..	White Columbine	2-2½	Pure white	Seeds or division	Feb.—Mar.	May, June, July

Botanical Name	Popular Name	Height in Feet	Shade of Color	How to Propagate	When to Propagate	Season of Flowering
<i>Arabis albidia flore pleno</i>	Double White Rock Cress	1	Pure white	Cuttings	July—Aug.	April—June
<i>Armeria maritima alba</i>	White Thrift	1	"	Division	After flowering	June—July
<i>Aster Delight</i>	White	3	"	Division	Nov.—Feb.	Sept.—Oct.
<i>Enchantress ericoides</i>	Michaelmas Daisies	4	Blush white	Cuttings	Mar.—April	Oct.
<i>Finchley White</i>	"	2	Pure white	"	"	"
<i>White Queen</i>	"	3	White, gold centre	"	"	"
<i>White Spray</i>	"	4	Pure white	"	"	Sept.—Oct.
<i>Astilbe japonica</i>	White Spiraea or Goat's Beard	5	Feathery white	Division	"	Sept.—Oct.
<i>Bellis perennis flore albo pleno</i>	Double White Daisy	1½	Pure white	Division or seeds	Nov.—Feb.	June—July
<i>Campanula glomerata alba</i>	White	1½	Pure white bells	Division	June—July	April—May
<i>latifolia alba</i>	White	3—4	Large white	Division	Autumn	May—June
<i>persicaefolia alba</i>	Peach-leaved Bellflower	2—3	Snowy white	Seeds	May	June—Aug.
<i>Centaurea montana alba</i>	White Perennial Cornflower	2	Pure white	Division	Sept. Nov.—Feb.	"
<i>Chrysanthemum, Doris Peto</i>	Border Chrysanthemums	2½	"	Cuttings or division of roots	Feb.—Mar.	June, July, Aug.
<i>Madame Desgranges</i>	"	3	Creamy white	"	"	Sept.—Oct.
<i>Market White</i>	"	3	Pure white	"	"	Oct.
<i>White St. Crofts</i>	"	2½	Creamy white	"	"	Sept.—Oct.
<i>Chrysanthemum maximum—King Edward</i>	The Shasta Daisy	3	Snowy white	Division, seeds	Nov.—Feb.	July—Sept.
<i>Mrs. Lothian Bell uliginosum</i>	Giant Ox-eye	6	White, yellow centre	Division	April—May	"
<i>Cimicifuga japonica racemosa</i>	Bugbane	2	Feathery white	"	Nov.—Mar.	Sept.—Oct.
<i>simplex</i>	Black Snake Root	4	Snowy white	"	"	July—Sept.
<i>Crambe cordifolia</i>	Late-flowering Snake Root	3	"	"	"	Sept.
<i>Delphinium Albion</i>	Flowering Seakale	4—6	"	Cut up fleshy roots	Oct.	June—July
<i>Beauty of Langport</i>	Double Delphiniums	4 5	Pure white Creamy white, yellow eye	Division	"	"

WHITE HARDY FLOWERS

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Botanical Name	Popular Name	Height in Feet	Shade of Colour	How to Propagate	When to Propagate	Season of Flowering
<i>Delphinium</i>						
General Roberts	Double Delphiniums	3-4	Creamy white	Division	Oct.	June-July
<i>grandiflorum album</i>		2	Satiny white	"	"	July-Aug.
Primrose	Single Delphinium	4	Cream, yellow eye	"	"	June-July
<i>Dianthus caryophyllus</i> vars.						
Bookham Clove	Border Carnations	2-2½	Pure white	Layers or cuttings	End July-Aug.	July-Aug.
Gloire de Nancy	"	"	"	"	"	"
Miss Ellen Terry	"	"	"	"	"	"
Old White Clove	"	"	"	"	"	"
The Bailiff	"	"	Blush white	"	"	"
Waterwitch	"	"	"	"	"	"
<i>Dianthus plumarius</i> vars.						
Albino	Border Pinks	½	Large white	Pippings or cuttings	July-Aug.	June
Fimbriata alba plena	"	"	Fringed white	"	"	"
Her Majesty	"	"	Pure white	"	"	"
Mrs. Sinkins	"	"	"	"	"	"
<i>Dictamnus Fraxinella alba</i>	White Burning Bush	2	Fragrant, pure white	Division of fleshy roots or seeds	Mar.	June, July, Aug.
<i>Digitalis purpurea alba</i>	White Foxglove	4-5	Spotted white	Seeds are best	April-Aug.	June-July
<i>Eremurus himalaicus</i>	King's Spear	6-8	Waxy white	Division of roots	Sept.	May-June
<i>Eupatorium ageratoides</i>	Hemp Agrimony	4-5	Pure white	Division	Nov.-Feb.	Aug.-Sept.
<i>Galega officinalis alba</i>	White Goat's Rue	3-4	Pea-shaped white	"	"	June, July, Aug.
<i>Galtonia candicans</i>	Spire Lily	3	White spikes	Division of bulbs	Feb.-Mar.	Aug.-Sept.
<i>Gypsophila paniculata</i>	Chalk Plant	2-3	Small white	Division, cuttings or seed	Feb., Mar., April	July-Aug.
<i>Gypsophila paniculata flore pleno</i>	Double Chalk Plant	"	"	Division, cuttings, grafting on single kind	"	"

Botanical Name	Popular Name	Height in Feet	Shade of Colour	How to Propagate	When to Propagate	Season of Flowering
<i>Glaadiolus Colvillei</i> , The Bride	..	2	Pure white	Bulbs, offsets	Sept.—Nov.	May—June
<i>Childesti</i> ..	..	3—5	Various light shades	Offsets from bulbs	Lift end Sept.—Oct. Plant in Mar.—April	July, Aug.—Sept.
<i>Gandavensis</i> ..	..	"	"	"	"	"
<i>Kelwayi</i> ..	..	"	"	"	"	"
<i>Lemoinei</i> ..	..	"	"	"	"	"
<i>Nanceanus</i> ..	..	"	"	"	"	"
<i>Hesperis matronalis alba</i> ..	..	2—3	Starchy white	Seeds	May—June	May—June
<i>Hesperis matronalis alba plena</i> ..	..	"	Pure white	Cuttings of side shoots	June—July	June—July
<i>Iberis sempervirens</i> ..	..	1	"	Cuttings	July—Aug.	May—June
<i>Iris albicans</i> , Princess of Wales	..	2	"	Division	"	"
<i>Iris florentina</i> ..	..	"	White, faintly tinted blue	"	"	"
<i>Iris germanica alba</i> ..	..	1½	Delicate white	Division of rhizomes	"	"
<i>Iris sibirica alba</i> ..	..	2—2½	Ivory white	Division	After flowering Mar.—May	July—Sept.
<i>Lathyrus latifolius albus</i> ..	..	6	Pure white	Seeds	Nov.—Feb. Oct.—Nov.	Aug.
<i>Lilium auratum</i> ..	..	5—6	White, golden marks and spots	Offsets from bulbs	Aug.—Oct.—Nov.	June—July
<i>candidum</i> ..	..	3—4	Snow white	"	"	July
<i>longiflorum</i> ..	..	2—3	Waxy white	"	"	Aug.—Sept.
<i>speciosum album</i> ..	..	3—3½	Snowy white	"	"	Summer
<i>Linum perenne album</i> ..	..	2	"	Division, seeds	Nov.—Feb. May—June	"
<i>Lupinus arboreus</i> , Snow Queen	..	3—4	Pure white	Cuttings, seeds	"	"
<i>Lupinus polyphyllus albus</i> ..	..	3	Delicate white	Division	Nov.—Feb.	June—July
<i>Lycnis vespertina plena</i> ..	..	2—2½	Pure, fragrant white	"	"	June—Sept.
<i>Malva moschata alba</i> ..	..	2—3	Snowy white	Division, seeds	May—June	June—Aug.

WHITE HARDY FLOWERS

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June—Aug.

May—June

seeds

Division

white

June—Aug.

May—June

seeds

Division

white

June—Aug.

May—June

seeds

Division

white

Potential Name	Popular Name	Height in Feet	Shade of Colour	How to Propagate	When to Propagate	Season of Flowering
<i>Matricaria inodora flore pleno</i>	Double May-weed	1½—2	Pure white	Cuttings, non-flowering shoots, Division	Summer	July—Oct.
<i>Paeonia officinalis alba plena</i>	Double White Paeony	2½—3	Flesh white	Seeds	May—June Sept.—Oct.	May
<i>Paeonia sinensis</i> varieties— Delacour Verhille	Double Chinese Paeonies	" "	Pure white Snow white White, cream centre	"	"	June—July
<i>Paeonia albiflora</i> varieties— Avalanche	Single Chinese Paeonies	2½	Pure white	"	"	"
Dawn	White Iceland Poppy	"	Snow white	"	"	June
Rutla		2	Blush-white	"	"	"
<i>Papaver nudicaule alba</i>		1	Creamy white	Seeds	Aug.	May—Aug.
<i>Phlox decussata</i> varieties— Flandre	Large-flowering Phlox	3½	Pure white	} Division Cuttings	Nov.—Feb. April—May	Aug.—Oct.
Freitraulen G. von Lassburg	"	"	Snowy white		"	"
Sylphide	"	3	Pure white		"	"
Tapis Blanc		2	"	Division	Nov.—Feb. Summer	June—July
<i>Phlox suffruticosa</i> varieties— Snowdon	Early-flowering Phlox	2—2½	Solid white	Cuttings of non-flowering shoots	"	"
Snowflake	"	"	Snow white	Division of roots	Mar.	July—Aug.
Virginalis	"	"	Ivory white	Division	Oct.—Nov. Summer	May—July Mar.—May
<i>Platyodon Mariesi</i> album	Chinese Balloon Flower	1—1½	Pearly white	"	"	April—May
<i>Polemonium caeruleum album</i>	Greek Valerian	1½	Pure white	Division	"	"
<i>Primula denticulata alba</i>	Himalayan Primrose	1	White, globular heads	"	"	"
<i>Sieboldii alba magnifica</i>	Japanese Primrose	1—1½	Pure white	Division, seeds	Mar.—April	"
<i>variabilis</i> variety	White Polyanthus	"	Various shades white, cream			

Botanical Name	Popular Name	Height in Feet	Shade of Colour	How to Propagate	When to Propagate	Season of Flowering
Pyrethrum coccineum varieties—						
Aphrodite ..	Double White Pyrethrums	2	Pure white	Division of roots	P. ar.	May—June, also in autumn if cut back & watered during
La Vestale ..	Single White Pyrethrums	2—2½	Bluish white	"	"	"
White Aster ..	"	"	Pure white	"	"	"
Conquest ..	"	"	Large white	"	"	"
Princess Marie ..	"	"	Pure white	"	"	"
The Swan ..	"	"	"	"	"	"
Ranunculus aconitifolius fl. pl.						
Ranunculus aconitifolius fl. pl.	Fair Maids of France	1½	Snow white	Division	Nov.—Feb.	May
Scabiosa caucasica alba ..	Caucasian Scabious	2—3	Pretty white	"	"	June—Aug.
Sidalcea candida ..	Colorado Mallow	3	Satiny white	"	"	July—Sept.
Spiraea Aruncus ..	Goat's Beard	5	White plumes	"	"	June—July
filipendulina fl. pl.	Double-flowered Dropwort	1½	Double white	"	"	June—Aug.
Ulmaria fl. pl. ..	Double White Meadowsweet	3—4	Ivory white	"	"	"
Tradescantia virginica alba	Spiderwort	1½	Delicate white	"	Feb.—Mar.	May—Sept.
Trillium grandiflorum ..	Wood Lily	1	Snowy white	"	Oct.	April—June
Veronica longifolia alba ..	Speedwell	2	White spikes	"	Nov.—Feb.	July—Aug.
Veronica virginica alba ..	Virginian Speedwell	4—5	Dainty white	"	"	July—Sept.
Viola, Marchioness ..	Tufted Fancies	1	Cream white	Division or cuttings	Aug.—Sept.	April—Sept.
Snowflake ..	or Violas	"	Snow white	"	"	"

WHITE-FLOWERED ANNUALS

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Botanical Name	Popular Name	Shade of Colour	Height in Feet	When to Sow	Where to Sow	Month of Flowering	Remarks, Habit, etc.
<i>Acroclinium roseum</i> album	Everlasting flower	Papery white	1	April	Open sunny border	July—Aug.	Slender, upright
<i>Ageratum mexicanum</i> album	Mexican Ageratum	Creamy white	1-1½	Feb.	Greenhouse	July—Sept.	Bushy; useful for beds
<i>Althaea rosea</i> alba ..	Hollyhock	Papery white	6-10	Jan.	Warm greenhouse	Aug.—Sept.	"all, double
<i>Alyssum maritimum</i>	Sweet Alyssum	Pure white	½	Mar.—April	Inside or outside	June—Sept.	Spreading, fragrant
<i>Alyssum maritimum</i> compactum	Dwarf Alyssum	"	½-1	"	"	"	Compact; useful for edging
<i>Ammobium alatum</i> ..	Winged Everlasting	Silvery white, yellow centre	2½	"	Greenhouse	Aug.	Strictly a perennial, but may be treated as an annual
<i>Antirrhinum majus</i> varieties	Tall, Intermediate and Dwarf Snapdragons	Pearly white	3, 1½, ½	Feb.	Heated greenhouse	July—Sept.	Seeds may also be sown in a frame in August
<i>Arctotis grandis</i> ..	Cape Daisy	White, centre shaded lilac	1½	April	Warm, sunny border	July—Aug.	Well-drained soil
<i>Brachycome iberidifolia</i> alba	Swan River Daisy	Snowy white	½	"	Open border	June—Aug.	Prefers warm, sunny position
<i>Browallia elata</i> alba	Peruvian Nightshade	Starchy white	1½	Mar.—April	Greenhouse	July—Aug.	Give sheltered spot
<i>Callistephus hortensis</i> albus	White Asters	Various shades	1½	"	Frame	"	White varieties in all sections
<i>Centaurea Cyanus</i> alba	Cornflower	Snowy white	2-3	End Mar.—April	Outside	"	Accommodating flowers
<i>Centaurea moschata</i> alba	Sweet Sultan	Fragrant, white	"	"	Frame or outside	"	Bushy, useful for cutting
<i>Chrysanthemum carinatum</i> album	Annual Chrysanthemum	White	2	"	"	"	A valuable annual for cutting
<i>Chrysanthemum coronarium</i> album	"	"	"	"	"	"	" " " "

Botanical Name	Popular Name	Shade of Colour	Height in Feet	When to Sow	Where to Sow	Month of Flowering	Remarks, Habit, etc.
<i>Chrysanthemum inodorum plenissimum</i>	Scentsless Dbie. Annual Chrysanthemum	White	1½	End Mar.—April	Frame or outside	July—Aug.	Useful for cutting
<i>Clarkia elegans alba...</i>	White Clarkia	"	2	"	Outside	"	Upright, branching
<i>Collinsia candidissima</i>	Collins' White Toadflax	Snowy white	1½—1	"	"	June—Aug.	Spreading
<i>Commelina caelestis alba</i>	Day Flower	Pure white	1½	Mar.—April	Heated greenhouse	July—Aug.	A perennial, but often treated as annual
<i>Cosmos bipinnata alba</i>	White Cosmos or Fennel	"	3—6	Feb.	"	July—Sept.	Tall, feathery foliage
<i>Delphinium Ajacis album</i>	Annual Delphinium Larkspur	Creamy white	1—3	End Mar.—April	Outside	June—July	Dwarf and tall branching varieties
<i>Dianthus caryophyllus var.</i>	White Marguerite	Fringed pure white	1½	Jan.	Heated greenhouse	Aug.—Sept.	Produces 90 per cent. double flowers
<i>Dianthus chinensis albus</i>	Carnation Indian Pink	Pure white	1	Mar.—April	"	July—Aug.	Useful in beds and borders
<i>Dianthus Heddevisi albus</i>	Japan Pink	"	1—1½	"	"	"	" " " "
<i>Eschscholzia crocea alba</i>	Californian Poppy	"	1	End Mar.—April	Outside	July—Sept.	Poppy-like flowers
<i>Gilia dichotoma</i>	Annual Gilia	Pearly white	1	"	"	July—Aug.	Stony dwarf plants for edging
<i>Gilia nivalis</i>	"	Fragrant snowy white with orange throat	1½	"	"	June—July	" " " "
<i>Helichrysum bracteatum</i>	Everlasting Flower	Silvery white	3	"	Frame	July—Aug.	Silver Globe is one of the best varieties
<i>Theris coronaria</i>	Rocket Candytuft	Snowy white	1	"	Frame or outside	July—Sept.	Little Prince is a dwarf variety
<i>Impatiens Falsamina</i>	Balsam	Pure white	1½	Mar.—April	Heated greenhouse	Aug.	Camellia-flowered varieties are the best

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Botanical Name	Popular Name	Inside of Colour	Height in Feet	When to Sow	Where to Sow	Month of Flowering	Remarks, Habit, etc.
<i>Ipomoea purpurea</i>	Climbing Convolvulus	Pearly white	6	April	Greenhouse or outside	July—Sept.	Elegant climber
<i>Ipomoea purpurea</i> major alba	Dwarf Convolvulus	"	1	"	"	"	Useful for warm border
<i>Kaulfussia</i> minor alba	Cape Aster	Star-like white	1	"	Open border	July	Excellent as edging
<i>Lathyrus</i> amelloides alba	Sweet Pea	Pure white	6—9	Jan.—Mar.	Greenhouse or frame, outside	June—Sept.	Many sorts; Etta Dyke and Dorothy Eckford two best
<i>Lavatera trimestris</i> alba	White Mallow	Pearly white	3	Mar.—April	Open border	June—Aug.	Bushy plants covered with flowers
<i>Layia elegans</i> alba ..	Californian Daisy	Pure white	1	April	"	June—July	A showy annual
<i>Linaria maroccana</i>	Annual Toadflax	Snow white	"	"	"	"	Has dainty spurred flowers
<i>Lobelia erinus</i> alba ..	Bedding Lobelia	Pure white	1—1 1/2	Feb.	Heated greenhouse	June—Sept.	Popular for edging
<i>Lobelia speciosa</i> alba	Spreading Lobelia	"	1—1 1/2	"	"	"	Useful for hanging baskets
<i>Lupinus</i>	Annual Lupin	"	2	Mar. or April	Open border	July—Aug.	Valuable for cutting
<i>Malcolmia</i> maritima alba	Virginian Stock	Starchy white	1	Mar.—May	"	June—Aug.	Pretty in masses
<i>Malope trifida</i> alba ..	White Mallow	Snow white	3	April	"	July—Aug.	Flowers resemble Hollyhock
<i>Matricaria eximia</i> fl. pl.	False Chamomile	Pure white	1	Mar.—April	Border or frame	"	Double flowers
<i>Matthiola</i> annual varieties	Stock	"	1—2	"	Greenhouse or frame	"	Very fragrant
<i>Mirabilis jalapa</i> alba	Marvel of Peru	Pearly white	2	"	"	"	Tuberous roots, may be lifted and stored in winter
<i>Metembryanthemum</i> tricolor alba	Fig Marigold	Pure white	1	April	Dry, sunny border	June—Aug.	Must be grown in sunshine
<i>Nemophila insignis</i> alba	Callifornian Bluebell	White, yellow centre	"	"	"	June—July	Low, spreading
<i>Nemesia strumosa</i>	Sutton's Nemesia	White, shaded cream	1 1/2	"	Open border	"	Lovely South African annual
<i>Neotiana affinis</i> ..	Tobacco Plant	Pure white	3	Mar.	Frame or border	July—Aug.	Deliciously fragrant

Camellia-flowered varieties are the best

Aug.

reared greenhouse

April

Botanical Name	Popular Name	Shade of Colour	Height in Feet	When to Sow	Where to Sow	Month of Flowering	Remarks, Habit, &c.
<i>Nicotiana glauca</i> ..	Large-leaved Tobacco Plant	Tubular, pure white	5-6	Feb.	Warm greenhouse	July-Sept.	Flowers remain open during day
<i>Oenothera amoena</i> alba	White Godetia	Satinny white	1½	Mar.-April	Frame or border	July-Aug.	Duchess of Albany also has white flowers
<i>Papaver nudicaule</i> album	Iceland Poppy	Pure white	1	Mar.	Open border or rockery	"	Really a perennial, but readily grown as annual
<i>Papaver somniferum</i> album	Opium Poppy	Double, pure white	3	Mar. or April	Outside	"	White Swan best variety
<i>Petunia violacea</i> ..	Bedding Petunias	Pure satiny white	1-1½	Feb.-Mar.	Greenhouse or frame	July-Sept.	Requires rich soil
<i>Phlox Drummondii</i> ..	Annual Phlox	Pure white	1	Mar. End	"	"	Trailing habit
<i>Portulaca grandiflora</i> alba	Purslane or Sun Plant	"	"	April	Frame or border	July-Aug.	Sandy soil
<i>Persicaria White Gem</i>	Persicaria	White plumes	2½	Mar.-April	Frame or border	"	Pretty branching
<i>Pyrethrum partheni-folium</i> album fl. pl.	Golden Feather White	Double, pure white	1	Feb.-Mar.	Heated greenhouse	"	Golden foliage
<i>Reseda alba</i> ..	White Mignonette	Greenish	2	Mar.	Frame or open border	"	Tall, spiral
<i>Reseda odorata</i> ..	Sweet Mignonette	Silvery white	1-1½	Mar.-April	Open border	June-Sept.	White Pearl best white variety
<i>Saponaria calabrica</i> alba	Italian Soap-wort	Pure white	1	April	"	June-Sept.	Suitable for massing
<i>Scabiosa atropurpurea</i> alba	Scabious	"	2	Mar.	Greenhouse or frame	July-Sept.	Snowball one of the best white varieties
<i>Schizanthus pinnatus</i> candidissima	Butterfly Flower	"	1	Mar. or April	Inside or outside	July-Aug.	Often grown in pots
<i>Schizopetalon Walkeri</i>	Walker's Schizopetalon	Feathery white	1	April	Outside	"	Fragrant
<i>Senecio elegans</i> alba fl. pl.	White Jacobaea	Pure white	"	Mar.-April	Greenhouse or frame	"	Useful for massing
<i>Specularia perfoliata</i> album	Venus's Looking-glass	"	1	April-May	Outside sunny border	"	Allied to Campanula
<i>Verbena hybrida</i> alba	White Vervain	Snow white	"	Feb.	Heated greenhouse	July-Sept.	Like: rich soil
<i>Zinnia elegans</i> alba fl. pl.	White Zinnia	creamy white	2-3½	Mar.	Greenhouse or frame	"	Excellent for cutting

YELLOW-FLOWERED ANNUALS

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YELLOW-FLOWERED ANNUALS

Botanical Name	Popular Name	Shade of Colour	Height in Feet	When to Sow	Where to Sow	Month of Flowering	Remarks, Habit, etc.
<i>Althaea ficifolia</i>	Fig-leaved Hollyhock	Sulphur yellow	6	Jan.—Mar.	Heated greenhouse	Aug.—Sept.	Bushy habit
<i>Althaea rosea</i> variety	Yellow Hollyhock	"	8—10	"	"	"	Double and single varieties
<i>Anthrinum majus</i> varieties	Snaydragon	Rich yellow	1—3	"	"	July—Sept.	There are tall, medium, and dwarf varieties
<i>Bartonia aurea</i>	Lindley's	Golden yellow	1—1½	April	Sunny border	June—Aug.	Thin to 1 ft. apart
<i>Centaurea moenchata</i>	Mentzella	Citron yellow	1½	"	Patches in open border	July—Aug.	Fragrant
<i>Chrysanthemum flava</i>	Yellow Sweet Sultan	Golden yellow	3	Mar.—April	"	July—Sept.	Double flowers
<i>Chrysanthemum coronarium</i> fl. pl.	Annual Chrysanthemum	Several shades	1½—3	"	"	"	Varities: Eastern Star, Morning Star, Evening Star
<i>Chrysanthemum segetum</i> varieties	Corn Marigolds	Yellow, brown eye	2	"	"	"	Thin out to 1 ft. apart
<i>Coreopsis Atkinsoni</i>	Atkinson's Tickseed	Orange Golden yellow, brown centre	1½	"	"	"	" " " "
<i>Coreopsis coronata</i>	Drummond's Tickseed	Yellow, crimson centre	2	"	"	"	Thin ½ ft. to 1 ft. apart
<i>Coreopsis tinctoria</i>	Tickseed	Pale yellow	2	"	"	"	" " " "
<i>Datura chlorantha</i> fl. pl.	Thorn Apple	Golden yellow	2	Mar.	Heated greenhouse	July—Aug.	Thin to 1 ft. apart
<i>Erysimum arvensanum</i>	Treacle Mustard	Orange	1½	Mar.—April	Open border	July—Sept.	Fragrant trumpet-shaped flowers
<i>Erysimum perfoliatum</i>	Orange Treacle Mustard	Orange yellow	1	"	"	"	Resembles the Wallflower
<i>Echecholtzia californica</i>	Californian Poppy	Orange	1	April	Sunny border	July—Aug.	May also be sown in autumn
<i>Echecholtzia crocea</i>	Orange-coloured Californian Poppy	Orange	1	"	"	"	Thin to 6 in.—8 in. apart
							There is a double variety

Excellent for cutting

Greenhouse or frame

Mar.

2—2½

creamy white

white

Botanical Name	Common Name	Shade of Colour	Height in Feet	When to Sow	Where to Sow	Month of Flowering	Remarks, Height, etc.
<i>Gallardia picta</i> lucensis	Double Blanket Flower	Bright yellow	1	Feb. or Mar.	Greenhouse or frame	July— Sept.	Seed of this variety may be obtained separately
<i>Helianthus annuus</i> ..	Common Sunflower	Yellow, dark centre	8-10	"	"	"	Enormous heads of flowers
<i>Helianthus</i> <i>cucurbitifolius</i>	Miniature Sunflower	Golden yellow, black centres	4	"	"	"	Valuable for cutting
<i>Helianthus</i> <i>bracteatus</i> var.	Yellow Everlasting Flower	Clear golden yellow	2½-3	Mar.	Warm green- house or frame	July— Aug.	Golden Globe, good variety
<i>Helipterum Sandfordi</i>	Sandford's Everlasting Flower	Bright yellow	1-1½	April	Warm, sunny border	"	Also called "Immortelle"
<i>Lathyrus odoratus</i> var.	Yellow Sweet Pea	Primrose yellow	6-8	Jan. to Mar.	Greenhouse, frame or border	June— Sept.	Clara Curtis one of the best yellow sorts
<i>Layia elegans</i> ..	Tidy Tips	Bright yellow, edged white	1	April	Warm, sunny border	June— Aug.	An attractive annual
<i>Leptosyne Stilmanii</i>	Stilman's Leptosyne	Golden yellow	1½	Feb.— Mar.	Warm greenhouse	Aug.— Sept.	Grow in sunny position
<i>Limnanthes Douglasi</i>	Douglas's Limnanthes	Yellow, edged white	½	Mar.— April	Sunny border	June— July	Free flowering, fragrant
<i>Lupinus hybridus</i> <i>luteus</i>	Yellow Lupin	Pure yellow	2	Feb.— Mar.	Greenhouse or frame	July— Aug.	May be sown outside, but are much later in flowering
<i>Lupinus Mensleri</i> ..	Mensler's Lupin	Sulphur yellow	1½-2	"	"	"	" " " "
<i>Matricaria eximia</i> fl. pl.	Falses Chamomile	Double golden yellow	1-1½	Mar.— April	Frame or border	July— Sept.	Unrivalled for cutting
<i>Matthiola annua</i> var.	Yellow Stock	Golden yellow sulphur and canary yellow	1-2	"	Greenhouse or frame	July— Aug.	Ten-week yellow varieties are valuable for borders and cutting
<i>Portulaca</i> <i>grandiflora</i> var.	Yellow Purslane	Golden yellow	½	April	Hot, dry, sunny corner outside	June— July	Must have sun to open flowers
<i>Rosella odorata</i> var.	Mignonette	"	½	"	Open border	July— Sept.	Good varieties: Cloth of Gold and Golden Queen
<i>Rudbeckia bicolor</i> <i>superba</i>	Cone Flower	Golden yellow, brown spots	1½-2	Mar.— April	Greenhouse or border	"	Sutton's Golden Sunset Rud- beckia

RED-FLOWERED ANNUALS

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Botanical Name	Popular Name	Shade of Colour	Height in Feet	When to Sow	Where to Sow	Month of Flowering	Remarks, Habit, etc.
<i>Salpiglossis sinuata</i> var.	Yellow Salpiglossis	Golden yellow	3	Mar.	Gentle heat	July—Aug.	Sunny position
<i>Sanvitalia procumbens</i>	Trailing Sanvitalia	Yellow, dark centre	1	April	Sunny border	June—July	There is a double variety
<i>Statice Renduelli</i> ..	Annual Sea Orange	Golden yellow	1	Mar.	Heated greenhouse	July—Aug.	Valuable to cut and dry for winter decoration
<i>Tagetes erecta</i> f. pl. <i>aurantiacus</i>	Lavender African Marigold	Rich orange	2	"	"	July—Sept.	Plant in sunny border
<i>Tagetes erecta</i> f. pl. <i>sulphurea</i>	Sulphur African Marigold	Sulphur yellow	2	"	"	"	" " "
<i>Tagetes patula</i>	French Marigold	Yellow spotted brown	1-1½	"	Greenhouse or frame	"	Useful for edging
<i>Tagetes signata</i> <i>pumila</i>	Mexican Marigold	Bright yellow	1	"	"	"	Profuse blooming
<i>Tagetes lucida</i> ..	Mexican Yellow Zinnia	Golden yellow	1½-2	"	"	"	Sweet-scented
<i>Zinnia elegans</i> var. ..		Bright yellow	1½-2	"	"	"	Splendid double varieties

RED-FLOWERED ANNUALS

Botanical Name	Popular Name	Shade of Colour	Height in Feet	When to Sow	Where to Sow	Month of Flowering	Remarks, Habit, etc.
<i>Alonsoa Wartweidei</i>	Mask Flower	Bright scarlet	1-1½	Feb.—Mar.	Heated greenhouse	July—Aug.	Narrow, dark green foliage
<i>Athaea rosea</i> var. ..	Hollyhock	Crimson and scarlet	8-10	Jan.—Mar.	"	Sept.	Double and single varieties
<i>Amarantus caudatus</i>	Love-lies-bleeding	Blood red	3-4	Mar.—April	Greenhouse or outside	July—Aug.	Very ornamental
<i>Anagallis Garibaldi</i> ..	Scarlet Pimpernel	Scarlet	1	April	Dry, sunny border	June—July	A useful annual for rockery
<i>Antirrhinum majus</i> var.	Snape-dragon	Deep crimson, coral red, etc.	3, 1½, 1	Jan.—Mar.	Heated greenhouse	Aug.—Sept.	Tall, medium and dwarf varieties

Botanical Name	Popular Name	Shade of Colour	Height in Feet	When in flower	Where in flower	Month of Flowering	Remarks, Habit, etc.
<i>Cecilia coccinea</i> ..	Tassel flower	Orange scarlet	1-1½	Mar.—April	Outside	July—Aug.	Also known as <i>Emilia flammea</i>
<i>Calandrinia spectabilis</i> ..	Rock Purslane	Ruby red	½	April	Sunny border	"	Must have sun to open flowers
<i>Callistephus albens</i> var.	Aster	Various shades of red and crimson	½-2	Mar.	Cool greenhouse or frame	End July—Sept.	Many varieties
<i>Centranthus</i>	Spur Valerian	Bright red	1	April	Open sunny border	July—Aug.	Bright colour
<i>Chrysanthemum carinatum</i> var. <i>atrococcineum</i>	Annual Chrysanthemum	Scarlet	2	Mar.—April	Patches in border	July—Sept.	Fine for cutting
<i>Collomia coccinea</i> ..	Glue-wort	Orange	1½	April	Open border	July—Aug.	Compact habit
<i>Conoclinium atrosanguineum</i>	Red Tickseed	Scarlet	3	Mar.—April	Patches in border	July—Sept.	Thin to 1 ft. apart
<i>Delphinium Ajacis</i> ..	Annual Larkspur	Rich red	2-3	April	Open border	June—July	Double and single varieties
<i>Dianthus chinensis</i> var.	Indian Pink	Ruby scarlet	½	Mar.	Greenhouse or frame	July—Aug.	Rich colours
<i>Dianthus</i>	Japan Pink	Dark crimson	½	"	"	"	Various shades
<i>Hedderwigia</i> var.	Climbing Echemocarpus	Deep crimson, scarlet, etc.	6-10	Feb.—April	Warm greenhouse	July—Sept.	Useful for clothing trellises
<i>Echemocarpus scaber</i>	Blanket Flower	Orange	2	"	Greenhouse or frame	"	Splendid colour
<i>Gallardia Amblyoden</i>	Everlasting Flower	Deep red	2-3	April	Warm greenhouse or frame	July—Aug.	Useful to cut for winter decoration
<i>Hellebryum bracteatum</i> var. <i>Fireball</i>	Sweet Candytuft	Deep crimson	½-1	Mar.—April	Frame or border	July—Sept.	Very effective
<i>Iberis umbellata</i> var.	Climbing Convolvulus	"	6-10	"	Greenhouse or border	"	Rapid climber
<i>Ipomoea purpurea</i> major	Cape Aster	Red, carmine	½	April	Well-drained border	June—July	Makes pretty edging
<i>Kaifusula amelloides</i>	Sweet Pea	Crimson	6-9	Jan.—April	Greenhouse or border	June—Sept.	Maud Holmes, Sunproof Crimsen, etc.
<i>Lathyrus odoratus</i> var.		Red and crimson shades					

RED-FLOWERED ANNUALS

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Botanical Name	Popular Name	Shade of Colour	Height in Feet	When to Sow	Where to Sow	Month of Flowering	Remarks, Habit, etc.
<i>Linum grandiflorum</i>	Scarlet Flax	Brilliant scarlet	1	April	Sunny border	July—Aug.	One of the brightest annuals
<i>Lupinus hybridus</i>	Lupin	Scarlet, white tipped	2½	Mar.—April	Frame or border	"	Very striking plant
<i>Malcolmia maritima</i>	Red Virginian Stock	Bright red	½	April	Sunny border	June—July	Very fragrant
<i>Malope trifida</i>	Purple Mallow	Crimson	2—3	Mar.—April	Open border	July—Aug.	Give rich, deep soil
<i>Matthiola annua</i> var.	Ten-week Stock	purple crimson and red	1—2	April	Greenhouse or frame	"	Popular fragrant flowers
<i>Mesembryanthemum tricolor</i>	Pig Marigold	Crimson	½	April	Dry, sunny border	"	Very showy for edging
<i>Mina lobata</i>	Climbing Marvel of Peru	Orange scarlet	6—9	Feb.—April	Warm greenhouse	"	A pretty climber
<i>Mirabilis jalapa</i>	Marvel of Peru	Crimson	1—2	April	Greenhouse or frame	"	Has tuberous root, but may be treated as annual
<i>Nemesia strumosa</i>	Annual Nemesis	Scarlet	1½	April	Open sunny border	June—July	Grow the large-flowered variety
<i>Nicotiana Sandera</i>	Red Tobacco Plant	Shades of red	3—5	Feb.—April	Warm greenhouse	July—Sept.	A very pleasing plant
<i>Oenothera amoena</i> var.	Godetia	Bright crimson	1—2	Mar.—April	Outside, open border	Aug.	Lady Albemarle is a good variety
<i>Papaver somniferum</i> var.	Opium Poppy	Scarlet	3	"	Open border	June—July	Brilliant colour
<i>Phlox Drummondii</i> var.	Annual Phlox	Crimson	1	Mar.	Greenhouse or frame	July—Sept.	A low-spreading plant
<i>Portulaca grandiflora</i> var.	Purslane	Red	½	April	Hot, dry, sunny corner, outside	June—July	Must have sun to open flowers
<i>Polygonum Persicaria</i>	Knottweed	Ruby red	2½—5	Mar.	Greenhouse or frame	July—Aug.	Branching habit
<i>Rosella odorata</i> var...	Red Mignonette	Reddish brown	1—1½	April	Rich, firm soil, open border	June—Sept.	Delightfully fragrant
<i>Salpiglossis sinuata</i> var.	Salpiglossis	Crimson, gold-veined	3	Mar.	Slight heat of greenhouse	July—Aug.	Sunny position
<i>Scabiosa atropurpurea</i> var.	Red Scabious	Brick red, cherry red	2	"	Frame	July—Sept.	Popular for cutting

Botanical Name	Popular Name	Shade of Color	Height in Feet	When to Sow	Where to Sow	Month of Flowering	Remarks, Habit, etc.
<i>Saponaria calabrica</i>	Italian Soapwort	Rosey scarlet	1	Mar.—April	Open border	June—Aug.	A pretty flower
<i>Veronica hybrida</i> var.	Hybrid	Scarlet, white eye	1	Feb.—Mar.	Warm greenhouse	July—Sept.	Trailing plants
<i>Veronica cardinalis</i> ..	Annual	Brilliant crimson	1	End Mar.—April	O. border	July—Aug.	Grow in groups or masses
<i>Zinnia elegans</i> var. ..	<i>Zinnia</i>	Orange scarlet, scarlet	1½—2	Mar.	Greenhouse or frame	July—Sept.	Fireball a grand variety

ROSE AND PINK FLOWERED ANNUALS

Botanical Name	Popular Name	Shade of Color	Height in Feet	When to Sow	Where to Sow	Month of Flowering	Remarks, Habit, etc.
<i>Aerocaulium roseum</i>	Immortelle	Satin rose	1	April	Warm, sunny border	July—Aug.	Double variety also
<i>Alonsoa Mutid</i> ..	Mask Flower	Delicate pink	1	Feb.—Mar.	Heated greenhouse	July—Sept.	Crimson centre to flower
<i>Althaea roses</i> var. ..	Pink	Rose and pink shades	8—10	Jan.—Mar.	"	Aug.—Sept.	Bennett's good named variety
<i>Antirrhinum majus</i> var.	Hollyhock Saapdragon	Pink, rose, carmine pink, etc.	3, 1½, 1	"	"	July—Sept.	Tall, medium, and dwarf varieties
<i>Calandrinia grandiflora</i>	Lock Purrlane	Rich rose pink	1—1½	April	Sunny border	July—Aug.	Must have open sunny border
<i>Callistephus alencensis</i> var.	Aster	Rose, pink, etc.	1—2	Mar.	Cool greenhouse or frame	End July—Sept.	Many varieties
<i>Clarkia elegans</i> var. ..	Clarkia	Rose and salmon shades	2	Mar.—April	Open border	July—Aug.	Double and single varieties
<i>Clarkia pulchella</i> ..	Clarkia	Pink, rose, etc.	1½	"	"	"	" " " "
<i>Cosmos bipinnata</i> ..	Cosmos or Feenel Dahlia	Rose, etc.	3—5	Feb.—Mar.	Heated greenhouse	Aug.—Sept.	Resemble small single Dahlias
<i>Delphinium Ajacis</i> ..	Annual Larkspur	"	2—3	April	Open border	June—July	Double and single varieties

PINK-FLOWERED ANNUALS

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Botanical Name	Popular Name	Shade of Colour	Height in Feet	When to Sow	Where to Sow	Month of Flowering	Remarks, Habit, etc.
<i>Dianthus Heddewigi</i> var. <i>Eastern Queen</i>	Japan Pink	Bright rose	1	Mar.	Greenhouse or frame	July—Aug.	Comes true to colour from seed
<i>Dianthus Barbarea</i> ..	Dianthus	Coral pink	1	April	Sunny border	"	Small plants covered with flowers
<i>Echecholzia californica</i> var.	Pink Californian Poppy	Rose pink	1	"	"	"	There are several varieties
<i>Gypsophila elegans</i> ..	Annual Chalk Plant	Pale pink	1-1½	"	"	June—Aug.	Small feathery flowers
<i>Helichrysum bracteatum</i> var.	Everlasting Flower	Pink	2-3	Mar.	Warm greenhouse, or frame	July—Aug.	Useful to cut for winter decoration
<i>Iberis umbellata</i> var.	Sweet Candytuft	Lilac	1-1½	Mar.—April	Frame or border	July—Sept.	Very showy
<i>Lavatera trimestris</i> ..	Mallow	Rosy purple	3	"	"	July—Aug.	Useful border plant
<i>Lathyrus odoratus</i> var.	Sweet Pea	Pink and rose shades	6-9	Jan.—Mar.	Greenhouse or outside	June—Sept.	Countess Spencer, Mrs. H. Sykes, etc.
<i>Lychalis Calimosa</i> ..	Rose of Heaven	Carmine rose	1½	Mar.—April	Open border	July	Fine border plant
<i>Malope trifida</i> rosea..	Pink Mallow	Bright rose	2-3	Mar.	"	"	Give rich soil
<i>Matthiola annua</i> var.	Ten-week Stock	Rose	1-2	"	Greenhouse or frame	"	Popular fragrant flowers
<i>Matthiola tristis</i> (bicornis)	Night-scented Stock	Lilac	1	"	"	"	Delicious scent
<i>Nemesis strumosa</i> ..	Annual Nemesis	Rose pink	1½	April	Open sunny border	June—July	Grew the large-flowered varieties
<i>Oenothera amara</i> var.	Godetia	Satin rose, pink	1-2	Mar.—April	Outside, open border	July—Aug.	Several varieties of this colour
<i>Papaver somniferum</i> var.	Opium Poppy	Rose pink	3	"	"	June—July	Brilliant in colour
<i>Phlox Drummondii</i> var.	Annual Phlox	Pink, white eye	1	Mar.	Greenhouse or frame	July—Sept.	A low spreading plant
<i>Scabiosa atropurpurea</i> var.	Pink Scabiosa	Pink, rose	2	"	Frame	"	Popular plant for cutting
<i>Saponaria calabrica</i> ..	Italian Soapwort	Starry pink	1	Mar.—April	Open border	June—Aug.	Pretty in masses
<i>Statice Suworowi</i> ..	Sea Lavender	Rosy pink	1	Feb.—Mar.	Greenhouse or frame	July—Aug.	Pretty feathery flowers

BLUE-FLOWERED ANNUALS

Botanical Name	Popular Name	Shade of Colour	Height in Feet	When to Sow	Where to Sow	Month of Flowering	Remarks, Habit, etc.
<i>Ageratum mexicanum</i>	Mexican Ageratum	Light blue	1½	Feb.— Mar.	Warm greenhouse	July— Sept.	Effective bedding plants, especially the dwarf varieties. Pretty in rockery.
<i>Anagallis grandiflora</i>	Blue Pimpernel	Bright blue	½	April	Dry, sunny border	June— Aug.	
<i>Anchusa capensis</i>	Annual	Azure blue	1½	Mar.	Greenhouse or frame	July— Sept.	May also be treated as a biennial. Will grow in shade.
<i>Asperula aurea setosa</i>	Alkanet	Pale blue	1	April	Outside	"	
<i>Brachycombe iberidifolia</i>	Woodruff	Lilac blue	½	"	Warm, sunny border	June— July	Somewhat straggling in habit.
<i>Browallia elata</i>	Swan River Daisy	Rich, bright blue	1½	Mar.	Greenhouse	July— Aug.	Useful annual for pots.
<i>Callistephus sinensis</i> var. <i>varietes</i>	Blue Browallia	Light and dark blue	1—2	"	Cool greenhouse or frame	End July— Sept.	Many blue varieties.
<i>Centaurea Cyanus</i>	Annual Asters	Rich blue	3	Mar. or April	Outside	July— Aug.	Useful double flowers for cutting.
<i>Centaurea moschata</i>	Cornflower	Purple	1½	Mar.	Greenhouse or frame	"	Give sunny position.
<i>Clintonia pulchella</i>	Sweet Sultan	Bright blue	1	April	Front of open border	June— Aug.	Resembles Lobelia.
<i>Commelina caerulea</i>	Californian Blue	Sky blue	1½	Mar.	Greenhouse or warm south border	July— Sept.	Really a perennial, but does well treated as annual.
<i>Delphinium Ajacis</i>	Spiderwort	Light and dark blue	2—3	April	Open border	June— July	Double and single varieties.
<i>Gilia capitata</i>	Annual Larkspur	Lavender blue	1	"	Well-drained border	"	Pretty for massing.
<i>Ipomoea purpurea</i> major	Annual Gilia	Dark blue and light blue	6—10	Mar.— April	Greenhouse or outside	July— Aug.	Rapid climber.
<i>Ipomoea purpurea</i> minor	Climbing Dwarf	"	1	"	"	"	Plant ½ ft. to 1 ft. apart.
<i>Kaufmannia amelloides</i>	Convulvulus Cape Aster	Star-like blue	1	April	Well-drained border	June— July	Sometimes known as Charlie heterophylla.
<i>Lathyrus odoratus</i>	Sweet Pea	Blue, mauve, lavender	6—9	Jan.— Mar.	Greenhouse or outside	Sept.	Many named varieties.

BLUE-FLOWERED ANNUALS

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Botanical Name	Popular Name	Shade of Color	Height in Feet	When to Sow	Where to Sow	Months of Flowering	Remarks, Habit, etc.
<i>Lobelia erinus</i> varieties	Blue bedding	Light and dark blue	1	Feb.—Mar.	Greenhouse	June—Aug.	Popular plants for edging beds and borders
<i>Lobelia speciosa</i> ..	Spreading Lobelia	Dark blue	1-1½	"	"	"	For window-boxes
<i>Lupinus Hartwegi</i> ..	Annual	Blue and white	2	Mar. or April	Frame or border	July—Aug.	Very easy culture
<i>Lupinus subcarneus</i>	"	Ultramarine blue	1	"	"	"	Not common
<i>Nemesia verticillata</i> compacta	Blue Nemesia	Lilac blue	1-1½	April—May	Open border	June—July	A dwarf, compact variety
<i>Nemophila insignis</i> ..	Californian Bluebell	Sky blue, white eye	1	April	Sunny border	"	A fine edging plant
<i>Nigella damascena</i> ..	Love-in-a-Mist	Pale blue	1-1½	Mar.—April	Open border	July—Aug.	Miss Jekyll is a rich-colored variety
<i>Nigella hispanica</i> ..	Devil-in-a-Bush	Rich purple	1-1½	"	"	"	Pretty Fennel-like foliage
<i>Phacelia campanularia</i>	Viscid Eutoca	Bright blue	1	April	Dry, sunny border	June—July	An early flowering annual
<i>Phlox Drummondii</i> varieties	Annual Phlox	Deep violet blue, white eye	1	Mar.	Greenhouse or frame	July—Sept.	Trailing habit
<i>Salpiglossis sinuata</i> violacea	Trumpet Tongue	Violet purple	2-3	Mar.	Greenhouse or frame	July—Aug.	Likes rich soil
<i>Salvia Horminum</i> ..	Blue beard	Purple	1-1½	Mar.—April	Outside	July to Sept.	Showy, purple bracts
<i>Scabiosa atropurpurea</i> Azure Fairy	Salvia	Purple blue	2	Mar.	Frame	"	Popular for cutting
<i>Schizanthus pinnatus</i>	Blue Scabious	Lilac blue	1-1½	Mar.—April	Greenhouse or border	July—Aug.	Prettily spotted flowers
<i>Specularia perfoliata</i> ..	Butterfly Flower	Purple, white throat	1	April	Open border	June—July	Small, bell-shaped flowers
<i>Statice sinuata</i> ..	Looking-glass Annual Sea	Purple and white	1-1½	Mar.	Greenhouse or frame	July—Aug.	Everlasting flowers
<i>Verbena hybrida</i> variety	Lavender Blue Verbena	Several shades	1	Feb.—Mar.	Warm greenhouse	July—Sept.	Exquisite trailing plants
<i>Viscaria oculata</i> variegata	Annual Lychnis	Lavender blue	1	End Mar.—April	Open border	July—Aug.	Useful in masses
<i>Whitlavia grandiflora</i>	Californian Bluebell	Violet blue	1	"	"	June—July	Allied to <i>Phacelia</i>

Jan.—Mar. Greenhouse or outside June—Sept. Many named varieties

CHAPTER XIV

FAVOURITE HALF HARDY FLOWERS

Balsam.—My earliest gardening recollections are associated with Balsams. How proud I was of those plants I had helped to grow, when they came into bloom. They, like many other flowers that have no grace to recommend them, are now comparatively rarely grown. And, after all, I doubt if, considering all the care and trouble needed to grow them really well, the Balsams give sufficient return. A badly grown Balsam is nothing but an eyesore. However, for those who do not care to lose touch with flowers by which our grandmothers set high store, let me give the following brief directions. The chief thing to bear in mind is that the Balsam must have no check; it must be kept growing freely and without rebuff from seed sowing until flowering time. Otherwise growth will be stunted, there will be bare instead of leaf-covered stems, and, in truth, our grown plant will not be an object of attraction. Seed is sown in April pots filled with light rich soil, placed in the greenhouse. A pair of glass over the pots and a piece of paper for shade are needed until germination takes place. When the seedlings show, these are of course removed. As soon as the plants have made three or four leaves pot each one separately in a small pot, using a mixture of turfy soil two parts, leaf soil one part, and (if available) a little dried cow manure rubbed through a sieve. Still keep them in the warm greenhouse. They need plenty of air on warm days and a minimum night temperature of 50°. Re-pot again as soon as the roots show through the soil in the small pots, using 4-inch wide pots this time. Take care that they do not suffer for want of water, and ventilate the greenhouse carefully, giving a little air early in the day, increasing it as the outside temperature rises. If the Balsams are wanted for the flower garden, plant them out early in June in a bed of good soil that has been manured. If they are for the greenhouse re-pot them into flower-pots 8 inches in diameter, using turfy soil two parts, dried cow

TUBEROUS BEGONIA

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manure one part. Balsams need at all times as much fresh air as outside conditions will allow, and as soon as the thermometer registers 55° the ventilators should be opened a little. These plants are susceptible to damage from cold winds, and special care is needed when these prevail. They also like plenty of sunshine and are not happy in a shady spot. The practice of stopping the shoots, as was constantly carried out years ago, is not recommended; in fact, it has since been proved by cultivators to be a mistake.

Begonia, Tuberous.—Only those who have seen an acre or two of Begonias in full bloom in July and August and almost equally gay until the frosts come can have any idea of the wonderful return this plant gives in six months from sowing the seed. Any one possessing a greenhouse in which a minimum night temperature of 55° can be maintained during February and March should have no hesitation in raising Tuberous Begonias from seed. The flowers are of varied and most brilliant colour shades, and in the mass are very showy. The seed is very small and needs some little care in sowing. Flower pots with a few crocks at the bottom for drainage, are filled with finely sifted sandy soil almost to the rim; the surface is then sprinkled with silver sand, and the seeds are sown lightly on this; a light sprinkling of sand is all they need for covering. Make sure that the soil is moist before the seeds are sown, then either place in a glass-covered box in the greenhouse, or put a piece of glass over each flower pot and shade from sunshine. The seedlings often come up irregularly, and it is not wise to wait until all the seedlings are through before transferring them to other flower pots. Pot them off as they are ready; that is to say, as soon as they can be conveniently got hold of. It is preferable to put each little plant singly in a small flower pot 2½ inches wide, using a soil mixture consisting of two-thirds sifted turfy soil or loam, one-third leaf soil, and a sprinkling of sand. Provided care is taken to keep the temperature of the greenhouse as uniform as possible, aiming at a minimum night temperature of 55°, and giving air when the thermometer registers 65° during the day, there should be no difficulty in inducing the little plants to make rapid progress. They are not planted out until early June, and before this it is necessary to repot them into pots 4 or 5 inches wide, and for this potting the turfy soil is not sifted. If it is wished to grow some for flowering in the greenhouse, it is an easy matter to repot them

again, as they require it, into 6- or 7-inch wide pots. Tuberous Begonias treated in this way will begin to bloom in July, and maintain a succession of brilliant blossoms until well on into the autumn.

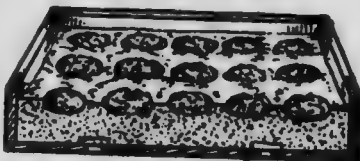
Begonias thrive best in a cool light soil, and are really good wet-weather plants; they are always finer in a dull moist summer than in a hot, dry one; they thrive admirably



Flower pan prepared for Begonia seed.



The glass is tilted to admit air when seedlings show.



Begonia roots placed in box of fibre to start into growth.



When growth is at this stage the root may be divided to increase stock

in semi-shade, and really it is scarcely possible to say too much in their favour as bedding plants. When the blooms are spoilt by frosts the roots are, of course, taken up. They are shaken free of soil and put to dry in boxes in some airy shed. When dry the stems will part readily from the roots, and the latter may then be stored away in boxes filled with sand or fibre, the boxes being kept in some dry, frostproof place until spring. The roots are started into fresh growth in February or March by laying them out in shallow boxes half filled with fibre or leaf soil in a warm greenhouse. Roots will soon begin to show, and then is the time to put them in flower pots. A mixture of two parts turfy soil, one part leaf soil, and one part dried cow manure suits them admirably. They can be grown on, either to plant out of doors in June, in which case 4-inch pots are large enough to accommodate them until then, or they may be subsequently repotted into 6- or 7-inch pots and grown for greenhouse decoration. Those who prefer to grow named

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TRUMPET DAFFODILS IN ROUGH GRASS AMONG SHRUBBERIES.

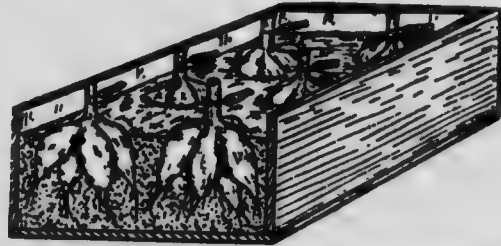


varieties of Begonias will, of course, have to buy the tubers in the spring and grow them in the greenhouse until planting out time. Seedlings give flowers of many and varied colours, although they are chiefly singles, whereas amongst the named varieties are included many beautiful double sorts.

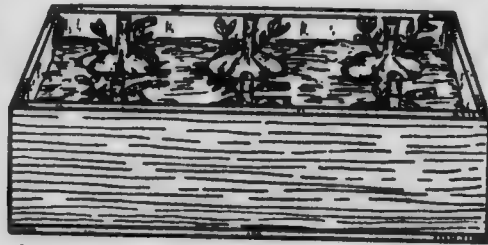
Dahlia.—Those who set out to grow Dahlias must first make up their minds whether they want a display in the garden or to achieve distinction on the show board, for the matter of procedure is different. The selection of varieties, too, is all-important. Dahlias have disappointed many people, chiefly because unsuitable varieties are grown. To grow varieties for garden display that are only suited for exhibition is unfair to the Dahlia and disappointing to the grower, for on the show board beauty of form and shape of petal are points that tell, yet obviously in the garden they would count for less. Dahlias for garden display should have their flowers held well above the foliage on strong stems, and they should be free blooming. A visit to the Dahlia show for the purpose of choosing varieties for the garden proves a snare and delusion. Pocket book and pencil are invaluable aids to the amateur when rightly used, but the proper place to use them is not at a flower show, but in the garden. Perhaps the finest of all for the garden are the single Dahlias. It is the simplest thing in the world to raise them from seed to flower the same year. I can at this moment, in October, look out upon a plot of Dahlias raised from seed sown in a cold greenhouse in February. The plants have been in bloom some weeks, and are still a mass of blossom. They are delightful in the garden and are none the less delightful for cutting for home use.

The seed germinates very readily in any sunny greenhouse in February, whether the latter is heated or not. All one has to do is to fill a few flower-pots with sandy soil, sow the seeds thinly, and when the seedlings are an inch high, or rather less, transplant them singly to small pots filled with similar soil. Grow them on and when well rooted re-pot into 4-inch wide pots. Give them all the fresh air possible during the day; they simply need to be kept safe from frost. Plant them out in early June where they are to flower. Place a strong stake to each plant when it is put out, and there will be nothing further to do than tie up the plants as they progress, keep them well supplied with water, and give them an occasional treat in the way of a sprinkling of fertiliser. The reward

will be an abundance of beautiful flowers from early September until the frosts come, and for grace and charm the single Dahlias are not surpassed. Those who are highly sensitive to crude colours will undoubtedly be disappointed with some of the seedlings, for these are usually of many colours—red, white, pink, primrose, red and yellow, magenta, and very likely some ugly striped varieties, but attractive flowers are far more numerous than those of unpleasing colour shade. One never knows what a packet of seed may produce, and



Dahlia tubers partly buried in box containing light soil.



If the box is kept in a warm, moist greenhouse cuttings soon appear.

there is always the chance that some particularly charming variety may turn up in this way. Then, naturally, the roots of this will be saved and stored away during the winter in the manner indicated by the accompanying sketches. It is scarcely worth while, especially where storage room is limited, to keep the roots of seedling Dahlias other than of any variety or varieties that may have been selected on account of their pleasing colour. It is such a simple matter to raise them annually from seed. The Double, Cactus, Pompon, and other kinds of Dahlias may be also raised from seed in the same way as detailed for Single Dahlias, but naturally they will not all come true. There will be a percentage of rogues, having single flowers, just as

DAHLIA

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in the single varieties there is a percentage of flowers of unattractive colour.

The method most usually practised of increasing Dahlias



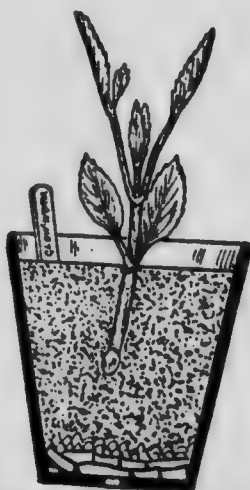
The cuttings may be taken off with a "heel" of old root, as shown here, if only a few are wanted.



If quantities of cuttings are required it is best to make this kind of cutting—severing the shoot below a joint and removing the lowest pair of leaves.



Another method of propagation is to divide the old roots as soon as growth begins.



A cutting inserted in soil in a small flower pot.



Piece of old root with young shoot potted up.

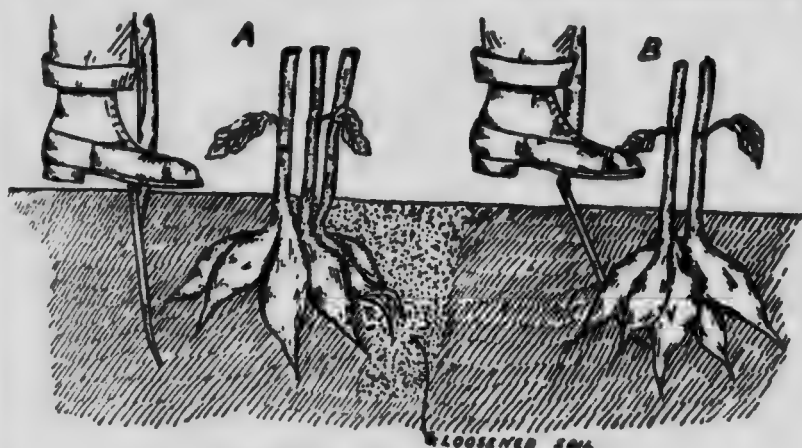
is by means of cuttings. The old roots are placed in boxes and covered with soil. In a warm, moist atmosphere they will soon make roots and start into growth. When about

3 inches long the shoots are taken off as cuttings, and inserted round the edge of 5-inch wide pots filled with sandy soil. If placed under a bellglass or handlight in the greenhouse, they will readily form roots. When nicely rooted, they are, of course, potted singly in small pots and grown on, as detailed previously, for planting out in June. It is well to water the cuttings when first they are inserted; afterwards, water must be given most sparingly, otherwise the cuttings will "damp off." If it is necessary to raise a large stock of any particular variety the tubers may be cut into several pieces, providing each piece has an "eye" or bud. Those who do not care to go to the trouble of increasing their Dahlias by means of cuttings may care to know that the old roots can be planted directly out of doors when, in May, they are taken from their place of storage. They will produce an abundance of blossom, and answer really well for garden display. They do not produce such fine flowers as the young plants raised annually from cuttings; however, they have the merit of coming into bloom earlier. If the old roots or tubers are left in the soil, ashes being heaped above them, some will pass through the winter safely and start into growth in the spring; at least in the southern counties and particularly in light dry soils. However, this is not a practice to be generally recommended.

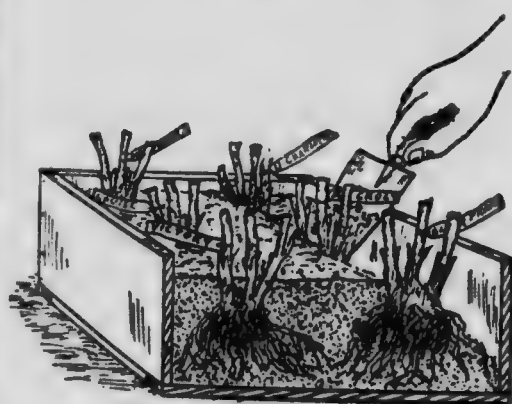
To grow fine Dahlias it is necessary to prepare the ground well, for they are fond of rich soil. One who grows Dahlias with great success writes that, "About the end of May I dig a hole 10 to 12 inches square and about the same in depth, put in a spadeful of stable manure, fill up with the soil, and plant the rooted cutting. The plants grow into large bushes without further attention and yield quantities of beautiful flowers." What better result could the most elaborate preparation yield?

Dahlias for exhibition.—The following notes are by one who grows Dahlias for exhibition:—The ground should be thoroughly dug, with plenty of well-decayed manure mixed with it, and left rough. When plants are not already on hand they are best purchased in April or very early in May. They should be potted into 5- or 6-inch pots, with some good turfy loam, sand, and leafmould, but not manure, because if the soil is rich it has a tendency to turn them yellow. They are placed in a cold frame or greenhouse, protected from frost, but given plenty of air whenever the weather is favourable.

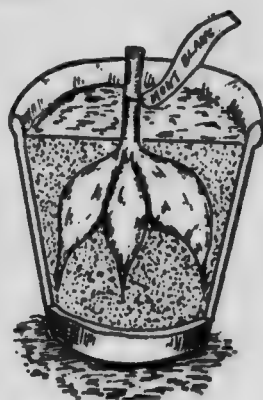
They are planted out 3 to 5 feet apart in the open the first week in June. Mix well-decayed manure with the loose soil which has been dug out, also with the loose soil in the bottom of the hole. Remove the plant from the pot as carefully as



Lifting Dahlia roots in autumn.



Dahlia roots stored in box.



Dahlia roots stored in flower pot.

possible and plant very firmly, pressing the mixture of soil and manure well about the ball of the plant. A hollow space should be left around the plant the shape of a large basin, 4 to 6 inches deep and about 18 inches in diameter. See that the plant is securely tied to a strong stake. As soon as planted Dahlias should be well watered overhead through a "rose," and after a week or so they can be watered in the same

way with weak soot water. This will feed the plants and have a tendency to keep down fly and other insects. Keep giving them at intervals of about a week, and within 3 or 4 inches of the stem, a good sprinkling of dry lime or soot. This will keep the snails from attacking the stems. When the plants are growing freely fill up the hollow space left with well-decayed warm manure, if possible, and cover with a slight sprinkling of soil, adding on the top of this a small quantity of dry lime and soot. After an interval of about a fortnight tread the manure very firmly around the plant. Continue watering overhead with weak soot water. The plants may then have plenty of liquid manure, given about every five or six days.

When the plants are growing freely the centre should be pinched out, also all the shoots near the base, so that the required shoots may come from the centre. Six or eight shoots will be required for the Cactus varieties, and three or four for the Show and Fancy varieties. The Pompon varieties should not be disbudded in any way or fed at all except with a good supply of soot water. When selecting the shoots, do not select two shoots from one joint; and leave only one bud to each shoot selected, removing all side shoots and buds that appear.

At this period the surface of the ground should have a mulching of long straw manure. As the buds begin to swell a watering of nitrate of soda will be beneficial, great care being taken not to use it too strong. A large tablespoonful to 8 gallons of weak manure water, and about 1 quart given to each plant, is quite sufficient. When the buds burst they should be covered over with glass or small boxes nailed to a stake stuck in the ground to protect them from rain.

The blooms selected for exhibition should be cut very early in the morning or late at night. By doing this the blooms will last much longer. One should select a good variety of colour and choose flowers of similar size, so that the exhibit may be of uniform quality. Always show them on boards painted green.

DAHLIAS FOR GARDEN DISPLAY.—Cactus Dahlias are probably more widely grown than any other class; their quaint flowers with thin, tapering, often twisted petals, are undeniably attractive. Some are very disappointing in the garden, and a selection needs to be made with care. *Cactus*.—Amos Perry, crimson scarlet; Conrad, terracotta; Dainty, yellow, shaded pink; Daisy Easton, yellow; Duchess of



ONE OF THE FINEST OF ALL DAHLIAS FOR THE GARDEN, KAISERIN AUGUSTA VICTORIA (WHITE).



Sutherland, bluish ; Effective, amber and rose ; Flag of Truce, white ; Flagstaff, rose carmine ; Harbour Light, orange red ; J. B. Riding, orange yellow ; J. C. Newbury, crimson ; Lord of the Manor, scarlet, with yellow centre ; Mrs. H. L. Brousson, yellow, shaded salmon ; Mrs. Charles Scott, apricot shade ; Mrs. Freeman Thomas, salmon pink ; Mrs. George Stevenson, bright yellow ; Mrs. J. H. Umar, orange bronze ; Mrs. H. Shoemith, white ; Pearl, pink and white ; Primrose, pale yellow ; Star, yellow, shaded bronze ; Sweetbriar, pink ; White Ensign, white ; William Marshall, orange yellow ; Yellowhammer, yellow.

Show.—The old Show Dahlias are great favourites with exhibitors, and have a value in the garden also, where their large, rounded blooms are very striking. The flowers, however, are often rather hidden by the leaves. Arthur Ocock, orange red ; Crimson King, crimson ; David Johnson, salmon and rose ; Colonist, chocolate and fawn ; Diadem, crimson ; Gracchus, orange yellow shade ; Harry Keith, rose purple ; John Walker, white ; Mrs. Wm. Slack, bluish, with purple edge ; R. T. Rawlings, yellow ; Rosamund, rose and purple shades ; Thomas Pendered, light yellow.

Pompon Cactus.—The Pompon Cactus varieties form a dainty class of Dahlias, with flowers of similar form to the true Cactus sorts, but very much smaller. They are pretty flowers ; although, as a rule, the flower stalks are none too strong ; consequently the blooms are inclined to droop. Alicia, rose crimson ; Coronation, scarlet ; Brilliance, orange ; Little Dolly, mauve pink ; Little Fred, pale primrose ; Mignon, pink ; Nain, orange yellow ; Peace, white ; Tomtit, pink ; William Marshall, dark red ; The Bride, white ; Sovereign, rich yellow.

Pompon.—The Pompon Dahlias, with neat, rounded little flowers, have for long been garden favourites, and they make quite a good display. Annie Holton, crimson, with light edge ; Bacchus, crimson scarlet ; Clarissa, primrose ; Buttercup, yellow ; Darkest of All, blackish crimson ; Doris, lilac and cream shades ; Emily Hopper, yellow ; Ganymede, amber ; Mignon, maroon purple ; Nerissa, silvery rose ; Queen of Whites, white ; Spitfire, scarlet.

Single.—These yield a finer harvest of blossom than any other kind of Dahlia, and are unsurpassed for garden display. Single Dahlias should be cut when only half open, otherwise the flowers do not last long in water. Bessie, crimson maroon ; Beauty's Eye, mauve, with crimson ring ; Columbine, rose ; Darknees, dark crimson ; Eric, orange red ; Glencoe, yellow ; Kitty, rosy mauve ; Leslie Seale, lilac ; Mikado, scarlet and yellow ; Miss Morland, crimson scarlet ; Huntsman, orange scarlet ; Snowdrop, white.

Fancy.—The large, globular blooms of the Fancy Dahlias are variously and richly coloured, and are favourite exhibition sorts. They are particularly showy, and a few are worth growing for garden display. Comedian, orange and crimson ; Golden Fleece, yellow and crimson ; Matthew Campbell, buff and crimson ; Heather Bell, scarlet

tipped with white ; Mrs. Saunders, yellow with white tips ; Peacock, purple maroon with white tips.

Decorative.—The Decorative Dahlias most closely resemble the Cactus varieties, but they lack the fine form and elegant florets of the true Cactus type. They are, however, among the most useful of all for garden display ; in fact, I doubt if for this purpose they are surpassed. Even the best of the Cactus varieties are eclipsed in point of showiness and display. Claribel, rose purple ; Cochineal, rich crimson ; Glare of the Garden, scarlet ; Kaiserin Augusta Victoria, white ; Orange Glare of the Garden, orange red ; Mrs. Gladstone, pink.

Giant Decorative.—These have very large flowers, sometimes 9 inches across. Some sorts are more double than others ; needless to say, they have no claims to exhibition merit. They are valuable for garden display. Jeanne Charmet, pink ; Grand Duc Alexis, white ; Madame Van Den Dael, silvery pink ; Souvenir de Gustave Douzon and Mdlle. Hélène Charmet, white.

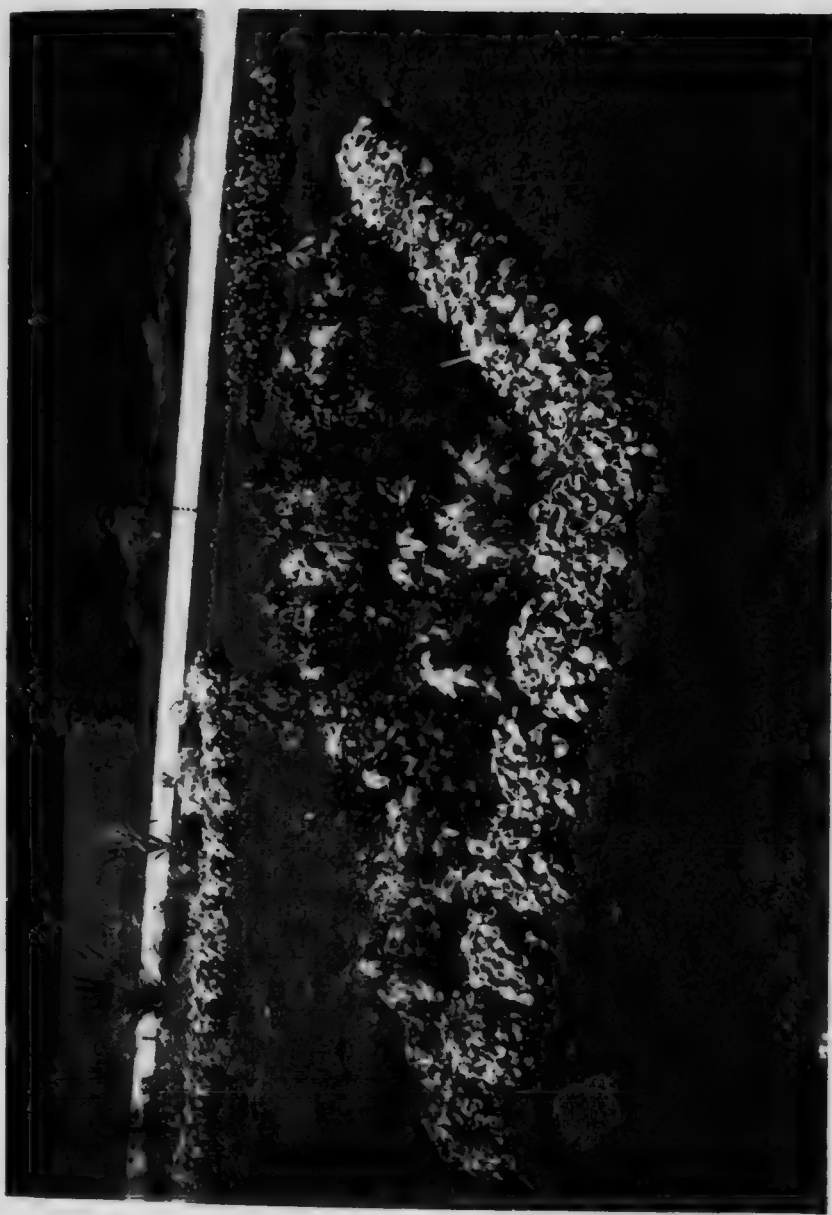
Pæony Flowered.—These Dahlias have large, rather ragged-looking single or semi-double flowers on long stalks, and the plants, from 4 to 6 feet high, are very handsome when in bloom. Pæony-flowered Dahlias find no favour in the eyes of lovers of form in a flower ; nevertheless, they are excellent for garden display. Baron G. de Grancy, creamy white ; Duke Henry, dark red ; Germain, crimson and yellow ; Geisha, scarlet and bright yellow ; Glory of Baarn, pink ; King Leopold, yellow ; Queen Emma, lilac shade ; Hugo de Vries, orange brown ; K. A. Victoria, sulphur white ; Queen Wilhelmina, white ; Sunrise, pink, yellow, and other shades.

DAHLIAS FOR EXHIBITION.—*Cactus.*—C. E. Wilkins, salmon pink and yellow ; Clincher, heliotrope and white ; Débutante, pink, tipped with white ; Dreadnought, crimson maroon ; Golden Eagle, yellow, shaded rose ; Goldcrest, scarlet and yellow ; H. H. Thomas, crimson ; H. L. Brousson, white and rose ; Iolanthe, coral red ; Indomitable, lilac mauve ; Kingfisher, lilac ; Quimbo, crimson maroon ; Onward, pink ; Mrs. Douglas Fleming, white ; Red Admiral, scarlet ; Rev. T. W. Jamieson, yellow with lilac edges ; Snowdon, white ; Snowsorm, white.

Show.—Arthur Rawlings, crimson ; Chieftain, lilac purple ; Duchess of York, lemon and pink ; Duke of Fife, cardinal ; Florence Tranter, blush with purplish edge ; Harrison Weir, yellow ; John Walker, white ; J. T. West, yellow, tipped with purple ; Maud Fellowes, white and purple ; Tasmania, rose pink ; Tom Jones, cream and lilac ; T. W. Girdlestone, purple.

Fancy.—Buffalo Bill, buff and red ; Emin Pasha, yellow and crimson ; Heather Bell, scarlet, tipped with white ; Mabel, lilac and crimson ; Mrs. Saunders, yellow and white ; Rev. J. B. M. Camm, yellow and red.

Pompon Cactus.—Alwyn, yellow and salmon ; Firefly, scarlet,



A LAWN BED FILLED WITH ORNAMENTAL-LEAVED PLANTS. ABUTILON THOMPSONI, VERONICA ANDERSONI
VARIEGATA AND AN EDGING OF GERANIUM LITTLE PIXIE ARE NOTICEABLE.

tipped with yellow ; Goldfinch, primrose, tipped with rose ; Mary, white, with crimson edge ; Martha, orange red ; Nora, yellow and crimson.

Singles.—Amy, terracotta ; Betty, rose lilac with crimson ring on petals ; Brilliant, crimson scarlet ; Flora, orange red ; Flame, orange yellow and scarlet ; Mikado, scarlet and yellow ; Miss Roberts, yellow ; Princess of Wales, pink ; Rosemary Bridge, rose ; Snowdrop, white ; Stromboli, very dark with white tips ; Winona, almost black.

Pompon.—Adelaide, blush with lavender edge ; Crusoe, white and pink ; Daisy, salmon yellow ; Darkest of All, dark maroon ; Florence, lilac ; Ideal, yellow ; Little Mary, crimson ; Nellie Broomhead, lilac ; Nerissa, silvery rose ; Queen of Whites, white ; San Toy, white and carmine rose ; Tommy Keith, red and white.

Fuchsia.—If there is one thing more notable about the Fuchsia than another, it is that it is easy to grow. Cottagers, with no greenhouse other than a sunny window, often produce as fine specimens as one could wish to see. When one possesses an old plant or two it is an easy matter to work up a stock by cuttings. The old plants are cut back hard in early spring, last year's shoots are shortened to within an inch or two of their point of origin. Given warmth and moisture, new shoots soon appear. These are taken off when 2 or 3 inches long, made into cuttings, and will soon form roots if inserted in flower pots filled with sandy soil, placed in a propagating case in a warm greenhouse. When nicely rooted they are potted off singly into small pots and the grower may then do anything he likes with them—grow sturdy bushes, handsome standards, or graceful pyramids. The great thing is to grow them quickly ; there must be no check. Even if one does not possess a greenhouse, it is still possible to induce the cuttings to form roots, which they will do under a glass case or bellglass placed in a window. Several weeks will elapse before the cuttings are rooted ; when this end is achieved a little air must be admitted and gradually increased day by day until, as the warmer weather comes, they are fully exposed. The question of re potting will soon need attention. It is best to put each cutting singly in a small pot 2½ inches wide, using a soil mixture of loam two parts, leaf-soil one part, and a fair sprinkling of sand. In a greenhouse, or even in a sunny window, they will make rapid growth, and the purpose for which they are to be grown must be determined. If wanted for ordinary bedding out for the summer garden or for window decoration, the tip of the young plant is pinched out when the latter is 4 or 5 inches

high ; this will induce the side shoots to grow and a bushy, sturdy *Fuchsia* will result. It will only need to be re-potted once more if grown for the summer garden, i.e. into a 5-inch wide flower pot.

Many amateurs like to grow standard *Fuchsias*, and these, if well developed, make extremely handsome specimens for putting out of doors in the summer months. They are easily obtained. All one has to do is to encourage the plant to grow until a sufficiently high stem is formed. It must not be "stopped" in the way advised for the production of a bush

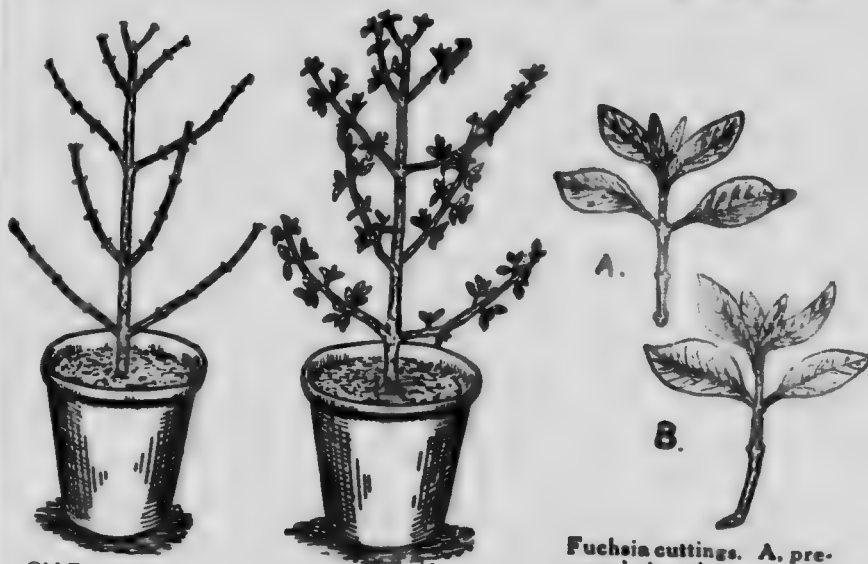


Various types of *Fuchsia* flowers

plant. Moreover, any side shoots that appear must be pinched out. When the stem has reached, say, 3 or 4 feet, which is a usual height, cut off the top to induce side growths to form. These will eventually form the "head"; it may be necessary to pinch out the points of the side growths in order to obtain sufficient growths to form a fine "head." If plants of pyramid form are desired, the central shoot should be encouraged to grow and be tied to a stake; side shoots are encouraged to form by nipping out the point of the central shoot as often as may seem necessary. It should first of all be pinched when a foot high, and usually it will be found that when it has grown another 12 inches, the point has again

to be pinched to induce sufficient side shoots to form, so that a well balanced plant of symmetrical form may be obtained.

The express cultivation of Fuchsias has a fascination for some growers. The following is a note by one who has successfully grown them in this way: "Cuttings are put in at the end of July or early in August for producing very large plants the following summer. The cuttings are potted off singly, when rooted, into 3-inch wide pots, and thence transferred to 6-inch pots as soon as the first pots are moderately filled



Old Fuchsia pruned in February.

Fresh growths suitable for cuttings.

Fuchsia cuttings. A, prepared in the ordinary way; B, with "heel" of old wood.

with roots. The plants are kept through autumn and winter on a shelf, all but touching the glass, in a light house with a minimum night temperature of 50°. At the middle or end of February they are transferred to 9-inch, 10-inch, or even 12-inch wide pots, according to the vigour of the plants, and the habit of the varieties as well as the condition of the roots. The temperature is raised to 55°, shade is given as the sun becomes powerful, and both leader and side shoots are stopped. At the end of April the plants are put in the pots in which they are to flower. Some of the plants may again have the points of the shoots pinched out, thus causing them to flower later and afford a welcome succession of bloom.

If the plants are required for exhibition they are stopped more frequently—the leading shoot at the end of every

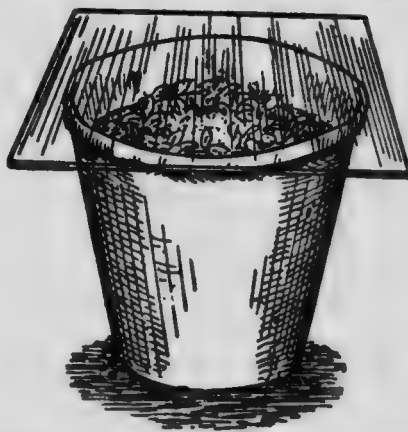


Inserting Fuchsia cuttings in sandy soil.

12 inches of fresh growth, the side shoots at every 6 inches in the early stages, and later on at 3 or 4 inches. All flower buds are removed, and the stopping is practised until about six weeks before the specimens are required to be in flower."

Fuchsias make charming plants for hanging baskets, and form most attractive objects in the greenhouse. When thus grown, wire baskets are the best to use. First, line the baskets with moss; then, using the soil

mixture as before recommended, arrange the plants at intervals of 6 or 8 inches round the basket, the shoots being thrust through the wires. It is necessary to put the plants in the



If the pot containing the cuttings is plunged in coco-nut fibre in a larger pot, and covered with glass, roots will soon form.



Fuchsia cutting with roots. At this stage it is ready for potting.

baskets when they are quite young, as soon, in fact, as they are well rooted in small pots. The amateur will find that the plants are arranged most simply when laid on their sides;

all spaces must be filled in with soil. There should, of course, be a layer of soil underneath the plants next to the moss. Plants in baskets only need to be "stopped" once as a rule. Two varieties that are recommended for this method of growing are called Scarcity, light and dark red, and Madame Cornellison, red and white.

There are now many varieties of Fuchsias, but some of the old ones still hold their own. A selection that can scarcely be improved upon is the following: *Single*—Madame Cornellison, white, red calyx; Improved Rose of Castile, purple, white calyx; Scarcity, dark carmine red, light red calyx; Mrs. Rundle, salmon, flesh coloured calyx; Amy Lye, salmon, white calyx, very pretty. *Double*—Ballet Girl, white, red calyx; Phenomenal in three distinct colours, purple, rose, and white; Pythagore, dark plum, red calyx; and Madame Danjoux, white, shaded mauve, carmine red calyx. Silver Sunray and Cloth of Gold have richly coloured leaves. Among the species of Fuchsia are several charming flowers, notably corymbiflora, scarlet; fulgens, scarlet; splendens, scarlet; and triphylla, orange scarlet.

Geranium.—Notwithstanding the many harsh things said about Geraniums, they are without doubt still the most widely grown of all half-hardy flowers, possibly of all flowers—and who can deny that they have a unique value? There is nothing to excel them for providing a brilliant splash of colour in the garden, and this is probably why they are so beloved by amateurs. Neither are they here to-day and gone to-morrow. Plants put out of doors in June continue to flower until the frosts, while those grown in the greenhouse may be had in bloom the winter through. Let us, then, give the Geranium its due; its bright colouring is scarcely surpassed. It is one of the most cheerful of all flowers, and its blossoming season is not for a day or a week, but for months. Indeed, the chief fault that I have to find with it is its monotony. From June until October, week in and week out, it is the same. It is in bloom when put out, it is in bloom when taken up. That is in one sense a reason for great thankfulness, but viewed from another point of view this characteristic is liable to make one tire of the flowers. Nevertheless, say what one will against the Geranium, it is, despite a long continued, unfair, and severe criticism, still a popular flower, and very likely it always will be. There are now, as ever, plenty of amateurs anxious to know the cultural details



A good type of Geranium cutting. A indicates the stipules which are to be removed.

up the old roots in autumn and keep them in a cellar or attic, or some other room where frost does not penetrate, but I very much doubt if all this is worth while. Unless the amateur has some kind of glass house in which a minimum winter temperature of 35° to 40° can be maintained, I believe he would do better to buy a few plants each spring; they are certainly cheap enough. However, we will suppose that suitable winter accommodation is available.

August is the month in which to take cuttings. They may be cut from plants growing in the flower beds without disfiguring the latter. September is also a good month in which

that point the way to success. Let us, then, consider the chief points to be observed. It may be as well to say, first of all, that the plants need protection from frost, and that a heated frame or greenhouse is very desirable for their safe care during the winter. It is possible, by covering a cold frame with mats during severe weather, to keep out frost; it is possible also to pot



Unsuitable cuttings. A is coarse and soft; B, too thin and long-jointed.



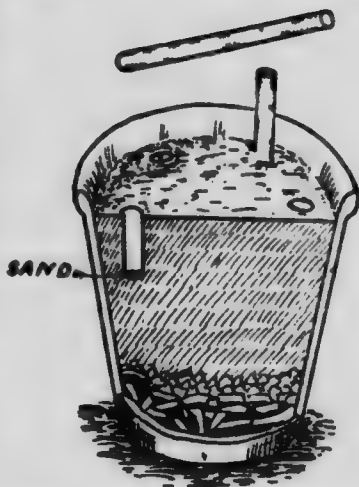
RED AND WHITE GERANIUMS. THE NAME OF THE WHITE VARIETY IS SNOWDROP, THAT OF THE
RED IS PAUL CRAMPEL.



to take cuttings, but the earlier they are put in after the middle of August the better chance they will have of passing the winter safely, since by the time the cold, damp weather sets in they will be well rooted. At the very latest all should be in by the end of September. The best cuttings are made from firm, short-jointed shoots—3 or 4 inches is a suitable length. Soft, sappy shoots, and weak, long-jointed ones are to be avoided. The former do not form roots readily, and it is hopeless to expect the latter to develop into good plants. The cuttings are prepared by re-

moving the lower leaves and cutting the stem across, just below the joint; it is advisable also, as shown in one of the accompanying sketches, to remove all stipules or leafy growths at the leaf joints, as they are apt to collect moisture which induces decay. Generally speaking, it is best to insert cuttings in the soil as soon as they are prepared, but with

Geraniums the proper thing to do is to place them on a sunny shelf for a day or so. The leaves will droop or "flag," giving the cuttings a most unhappy appearance, but the object is to allow them to become hard and the cut surface dry, and this is achieved by leaving the cuttings exposed to the air. The risk of decay setting in when the cuttings are inserted in the soil is thus greatly minimised, while root action is not delayed. The flower pots commonly used when large numbers of cuttings



Flower pot prepared to receive Geranium cuttings.

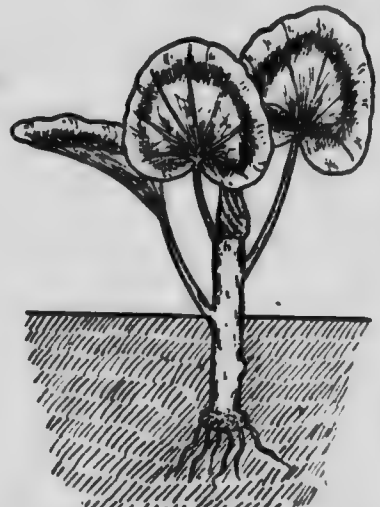


The cutting properly inserted in the soil.

have to be put in are those known as large sixties; they are about 3 inches wide. The pots are filled with a soil mixture consisting of two parts turfy soil, one part decayed leaf-soil, sand being freely intermixed. The surface of the soil in each pot is also covered with a thin layer of sand, so that when the hole is made sand will fall in and form a dry base for the cutting to rest on. Naturally drainage at the base of the flower pot must be provided; one crock over the hole, and this covered with rough leaf-soil or moss, is sufficient. A



A cutting suspended, owing to the hole being too deep.



The Geranium cutting rooted.

blunt-pointed stick is used to insert the cuttings, which are placed about an inch and a half apart round the sides of the pot. Care is necessary not to make too big a hole, and to see that the cutting rests on the bottom of it. It is important also to make the cutting firm at the base.

When all the cuttings are inserted, water with a can having a rose on the spout; stand in a fairly sunny place out of doors, or in a cold frame that is kept open. Shade from hot sunshine and protection from heavy rains are necessary. The cuttings soon form roots; they are left just as they were inserted throughout the winter. By the middle of October they ought to be brought into the greenhouse so as to be safe

from frost. The best place for them is on a shelf near the glass; if they are more than a foot away from the latter they are liable to become "drawn." Water needs to be applied with great care, the soil should not even be kept moist; it is, in fact, far better to give not enough than too much water. The extremes of dust-dry soil and soil that is wet are to be avoided. During dull weather once a fortnight will, at any rate, be quite often enough to water them. Geranium cuttings are particularly liable to "damp off" at the soil level, and an excess of moisture encourages this malady. Decaying leaves should be carefully picked off, and cuttings that have turned black at the base ought to be thrown away; otherwise sound cuttings may be similarly affected. In February the cuttings are potted singly into 3-inch wide pots and grown in the greenhouse until May, then gradually hardened off in a cold frame for planting out in June. This, then, is the routine to be observed in growing Geraniums for summer flowering in the outdoor garden. If it is wished to preserve any of the old plants, as is sometimes the case with a favourite variety, they are taken up in autumn, potted in flower pots, and kept in the greenhouse throughout the winter, very little water being given. In February they may be trimmed into shape, cutting back the growths to within three or four buds of the base. Young shoots will grow, and these may be taken off as cuttings if necessary. Otherwise the plants may be grown on in the same way as the cuttings for planting outdoors in June. One's stock may be still further increased by cutting off, in February, the top of each autumn-rooted cutting. Thus one may have two plants instead of one from the original cutting. Under a hand-glass in the greenhouse, the piece cut off will soon form roots, and the cutting from which it was taken will quickly make fresh growth.

Varieties.—Among the best Geraniums for beds in the summer garden are: Distinction, scarlet; Henry Jacoby, crimson; King of Denmark, salmon; Master Christine, pink; Paul Crampel (the finest of all), bright red; Snow-drop, white (shown in the accompanying illustration); Vesuvius, and West Brighton Gem, scarlet. The best of the tricolour leaved sorts is Mrs. Pollock; of those with green and white leaves, Flower of Spring; of the gold or yellow leaved varieties, Crystal Palace Gem. Black Douglas is one of the best of the bronze leaved Geraniums.

Marigold.—There are many so-called Marigolds; for

instance, the African and French Marigolds (*Tagetes*), Cape Marigold (*Dimorphotheca*), Fig Marigold (*Mesembryanthemum*), Marsh Marigold (*Caltha*), and Pot Marigold (*Calendula*), each quite a distinct plant from the other. How misleading are these popular names! However, the ordinary reader understands Marigold to refer to the French, African, and Pot Marigolds, and these are the three with which we are now concerned. The botanical name of *Calendula* is said to imply that the plant keeps pace with the calendar; in other words, that it is nearly always in bloom. And really this is not very far from the truth. Once introduce the Pot Marigold into your garden, and you will rarely be without flowers. It is hardy, and seeds itself very freely. Seed may be sown out of doors where the plants are to bloom in March or April, choosing for preference poor ground; otherwise the plants will grow freely enough, but blooms will be scarce. A very fine variety is Orange King, a great improvement on the old kind. Lemon Queen, too, is worth growing for variety. The African and French Marigolds are half-hardy annuals. The former grow some 2 or 3 feet high, and bear large handsome flower heads, some double, some single, out of the same packet. They last in bloom from mid-August until November. At least I think they are handsome, but they do not please everyone. The colour shades (of orange yellow) are said to be crude and garish, but they give an invaluable bit of colour in the autumn border if massed. Seed is sown in February in the greenhouse; the seedlings are grown on and planted out about 12 to 18 inches apart. There is nothing much brighter in my garden this gloomy autumn day than the African Marigolds. The French Marigolds, which need similar cultural treatment, are less showy though more graceful plants, and there is more variety of colouring in the flowers. They may be had in several colours, deep yellow, orange and pale yellow, or striped and marked with brown shades. They range in height up to 12 or 15 inches. The dwarf French Marigold (*Tagetes signata*) is an attractive, old-fashioned little plant that was much more largely grown formerly than now. The flowers are small, orange yellow, and freely produced in poor soil; the leaves, too, are of pretty shape. All the Marigolds have a characteristic, and to some an unpleasant, scent. This may, perhaps, count against their use as cut flowers, but the tall African varieties make handsome vasefuls—and how long they last!

Petunia.—The hobby flower gardener, the gardener in the suburbs, seems to find great pleasure in the Petunia. Its garish colouring, that estranges it from so many, finds favour with him. It is a pity that the flowers generally are of such gaudy colouring; add to this the facts that the leafage is unattractive and unpleasant to handle and that the scent of the leaves is none too agreeable, and we have an explanation of the comparative unpopularity of the Petunia among gardeners generally. Still, in public parks and suburban flower gardens, where masses of colour are a necessity, and in small greenhouses where its continued blooming endears it to the owner, it is still indispensable. It has been in our gardens eighty years or more, so there is no excuse for its comparative obscurity. It would be unjust to say that there are no pleasing colour shades among Petunias; more than ever would it be unjust to say so to-day, for some florists' varieties are very pretty and do not offend the eye. Those who do not mind incongruities in the way of colour shades should sow a packet of mixed seed in the greenhouse in February; the resulting plants, if grown on and hardened off in frames for planting out in June, will provide a rare colour display. Those who are more fastidious must get cuttings of named varieties. August is the month in which to take them. In a warm greenhouse and on a hotbed made up of half manure and half leaves, the cuttings, if put in sandy soil in flower pots, will soon form roots. They may be rooted without either of these conveniences, but it will take longer. Whether rooted in a warm greenhouse or cold frame, frame culture is afterwards necessary for the plants. They must not, of course, be exposed to frost; when this threatens they should have the shelter of a greenhouse with a minimum temperature of about 45°. If placed on a shelf somewhere near the glass, they will not get "drawn," and in spring, when potted off singly, will grow into good plants. They may be subsequently used for the greenhouse, or for bedding out. In either case they must have the coolest treatment, or they will become straggling and spoilt. Petunias like a sunny spot, and fairly light soil—one that is free from stagnant moisture. They do no good in heavy, ill-drained land. Readers may care to know that the Petunia is as hardy as the Geranium, perhaps a little hardier. When grown in pots in the greenhouse the plants must be kept near the glass. They like a soil made up of two parts

turfy soil and one part leaf soil with a good sprinkling of sand.

Salvia.—The *Salvias* are brilliant autumn flowers, and the only objection that can be raised against them is that they are half hardy. One of the most brilliant flower displays I have ever seen is at Mr. Leopold de Rothschild's garden, at Gunnersbury, where in September a roof is covered with *Salvia* blossoms. The variety used, and it is the most brilliant one I know, is called Fireball; it is increased by means of cuttings. It is a much improved variety of the commonly grown *Salvia splendens*. Throughout late August and September, and even until the frosts come, the *Salvias* are one of the gayest flowers in the outdoor garden; they are also largely grown in flower pots for conservatory decoration throughout October and November, and even up to Christmas.

The best time to insert cuttings is in February or March; the old plants are kept during the winter in a greenhouse, where they may be protected from frosts. If, early in the New Year the shoots are cut back and the plants brought into a warm greenhouse, they will soon make fresh growths. The young shoots are taken off and made into cuttings when 2 or 3 inches long; they root readily in little pots filled with sandy soil placed under a bellglass. They are simply potted on as required into larger flower pots, gradually hardened off in frames, and finally planted out in early June. If required for conservatory decoration they must be given larger pots if they need it, being finally shifted into those of 7 or 8 inches diameter. During summer the plants are grown out of doors in a sunny spot, although they should not be exposed to strong winds, otherwise the leaves will be damaged. It is best to plunge the flower pots in ashes, so that the roots may be kept equably moist. The soil is less likely to dry quickly, consequently less watering is needed. When well rooted in the flower pots the use of fertilisers is recommended. Clay's Fertilizer may be given either by sprinkling a little on the soil, say, once a week, or by dissolving a teaspoonful in a gallon of water and watering with the liquid. Just as tuberous *Begonias* are most brilliant in a dull, wet summer, so, out of doors, *Salvias* are seen at their best only when the weather is hot and dry. If the amateur bears this in mind he has no excuse for lack of brilliant blossom in his flower garden, whatever the weather may be. *Salvia splendens* is

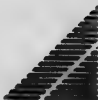
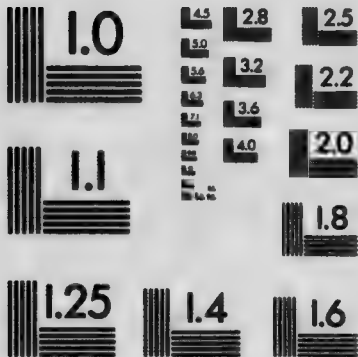
quite the best for general purposes; it has brilliant scarlet flowers.

Another even more charming *Salvia*, though perhaps not so generally useful since more difficult to grow and giving less bounteous blossom, is the blue *Salvia patens*, one of the finest of all blue-flowered plants. It has tuberous roots, and is treated in the same way as the *Dahlia*. The roots may be kept from year to year, started into growth in the greenhouse in spring, and planted out in June, or the young shoots may be taken off as cuttings in March. They, too, will make excellent plants for putting out in early summer. Other *Salvias* that are well suited for greenhouse decoration, though less satisfactory out of doors than *splendens* and *patens*, are the following, but they are only recommended when further variety is desired: *Betheli*, rose-coloured flowers; *azurea grandiflora*, with blue flowers—quite an excellent greenhouse plant, invaluable on account of its rich colour; *rutilans*, whose chief fault is that it bears magenta-coloured flowers, yet has the great advantage of blossoming nearly all the year round, it has an additional distinction in scented foliage, in which some profess to find a fragrance similar to that of the Pineapple; *Bruanti* is somewhat similar to *splendens*, but of dwarfer growth; *gesneræflora* has light scarlet flowers that come in April, whereas the others are at their best during autumn and winter. If you would prepare an ideal soil mixture for *Salvias*, use three parts turfy soil, one part horse manure which has been passed through a coarse sieve, and add a little soot. That pernicious little insect, the red spider, seems especially fond of *Salvias*; its attacks are best prevented by frequent syringings with water with which a little soot is mixed, or even with clear water. Unless the cultivator is careful to keep the soil uniformly moist and to give occasional doses of fertiliser, instead of having plants distinguished by deep green leaves and plenty of flowers, he may find that disappointment is in store for him in the shape of pale green leafage and scanty flower buds. Two other points are to be observed, i.e. to pinch out the top of the young plant when it is about 6 inches high, and again pinch out the points of the resulting shoots so as to promote sturdy, bushy plants. Naturally, the plants for winter flowering will be brought into the greenhouse in September, otherwise the cool nights and heavy dews will have the effect of causing some of the leaves to turn yellow and fall.



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CHAPTER XV

HALF HARDY ANNUALS

WHEN I mention that among half hardy annual flowers are found African and French Marigolds, Indian and Chinese Pinks, Phlox Drummondi, Asters, Stocks, and Zinnias, it will be recognised what an important class they are. Seed is sown in the greenhouse, or in a frame, in February or early March. When large numbers of plants are necessary the seeds are sown in boxes, or in a bed of soil made up in the frame. The choicer sorts are commonly transplanted when about an inch high or less, but with commoner sorts it is usual only to thin them out. All the seedlings are gradually hardened off by admitting more air to the greenhouse or frame, and in late April or early May are planted where they are to bloom. The seeds are sown on a light, sandy soil, made up of sifted loam or turfy soil with which sand and a little leaf soil have been mixed. The pans, pots or boxes in which the seeds are sown are shaded until germination takes place. The soil should be moist when the seeds are sown. When further water becomes necessary, it should not be applied through the spout of a watering-can, but by immersing the pot to the rim in a pail of water until the surface becomes moist. This cannot be done when the seeds are in large boxes, or in a bed of soil, so the best way to give water is in the form of a fine spray through a syringe. "Damping off" accounts for the loss of many seedlings, and careless watering, together with faulty ventilation, is to be blamed. A little fresh air admitted each day when the weather is favourable quickly dispels dampness from the atmosphere.

Half hardy annuals may be sown outdoors in late April in the places where they are to bloom. This is the plan adopted by those who have no glasshouse or frame, and the only difference in the result may be that the plants come into bloom later. Often, however, they are not so fine, since they come into bloom before having made good growth. Those who are unable to raise half hardy annuals under glass may do

better to buy a few plants in April than to sow seeds outdoors then.

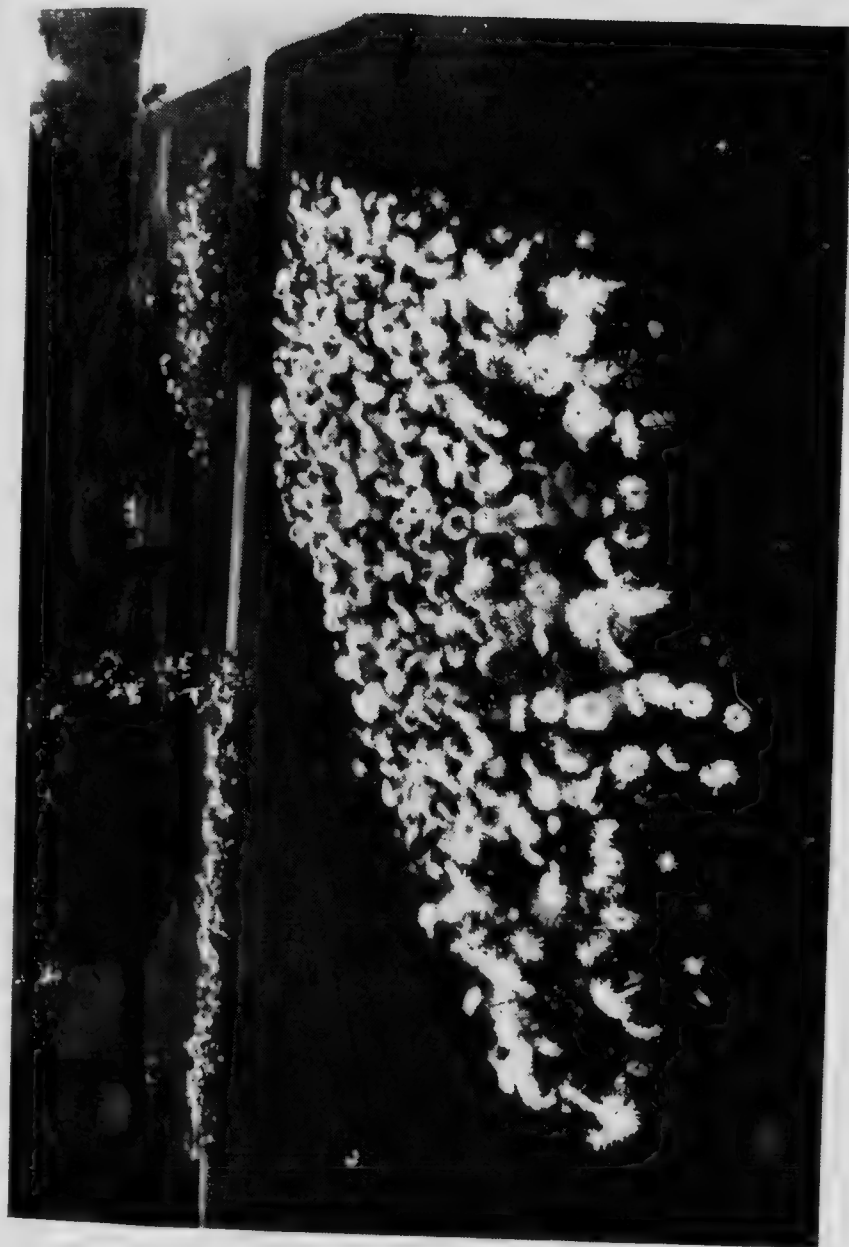
AMARANTHUS (*Prince's Feather*).—This is the old Love-lies-Bleeding, a plant that is not at all commonly seen nowadays, and perhaps it is scarcely as well worth growing now as a few years ago, when flower lovers had not such a choice of plants as they have to-day. It is a half hardy annual, and with its long trails of crimson blooms, is certainly not to be despised. There is not much difficulty about growing *Amaranthus*, if seed is sown in February or March in the greenhouse, the seedlings being nurtured and finally planted out late in April or early in May. *A. caudatus* is the old Love-lies-Bleeding, but there are improved sorts; one called *tricolor splendens* growing 18 inches high, is among the best and is remarkable for the bright colouring of its leaves, which are crimson, yellow, and green. In fact, so multi-coloured is this variety, that it has come to be known as *Joseph's Coat of Many Colours*. One called *melancolicus ruber*, with bright red leaves, grows only about a foot high and is sometimes made use of as a bedding plant, while the Willow-leaved variety (*salicifolius*) grows as high as the old Love-lies-Bleeding, i.e. 3 feet.

ANTIRRHINUM (*Snapdragon*).—The Snapdragon is one of the most valuable of all garden flowers, and as it is very often treated as a half hardy annual, we may as well say something about it here. If seed is sown in the greenhouse in February or March, and an unheated greenhouse is quite suitable at that time of year, plants will be in bloom in July, and will continue flowering until the frosts come. As they are perennials, they may, of course, be left undisturbed after the flowers are over, but after the second season, at any rate, the plants become straggling and are not worth keeping. There is no difficulty about raising the seeds if they are sown thinly in sandy soil, the flower pots being covered with a pane of glass and shaded until the seeds germinate. The finest plants are obtained by putting the seedlings singly in small pots, but most growers are content to place several in a large pot, or a larger number in boxes; in any case, they are gradually hardened off for planting out in early April. As mentioned on page 30, there are three chief classes—the tall, intermediate, and dwarf. There are some most charming varieties, especially among the intermediate sorts, of orange and pink shades of colour, and those who are acquainted with only the old purple, crimson and white sorts will be most agreeably surprised with the charming tints to be found in the newer ones. In this case, it seems scarcely worth while to give a list of named varieties, since every seedsman possesses those of up-to-date colouring, and, often enough, names them according to his own fancy.

ASTER.—Some people affect to despise Asters, but such affectation surely displays ignorance of the many charming and greatly varied sorts that the skill of the florist has placed at our disposal. Page after page of an up-to-date seed catalogue is devoted to singing the

praises of the Aster in its many varieties. To think of Asters is, perhaps, naturally to conjure up visions of those stiff, large, flat-blossomed flowers that have little claim to the attention of flower lovers who delight in a plant that has grace of form. But showy as these are there is no need to grow them, for are there not plenty of others from which to choose? The single-flowered China Asters and the Ostrich Plume varieties are probably those that will make chief appeal to the amateur grower. They are altogether delightful and graceful flowers, and so free blooming as to please the most exacting. But as bedding plants the formal florist's type of Aster is still popular, and when neatness and compactness of growth are desirable qualities for the purpose in view, they are valuable. Those who delight in growing flowers for exhibition cannot afford to dispense with the florist's Aster, for it comes into bloom in August, the great month of flower shows, and, if well grown, always finds favour in the judge's eye. Then, according to the directions in which your tastes incline, make your choice, choosing those that possess grace of form and the quality of free blooming if you wish for an informal garden display, but if your aspirations lie in the direction of winning prizes, in spite of all comers, and your fancy is for a garden all neat and trim, then by all means grow the Asters of stiff, formal type. If you think it worth while to have Asters in bloom throughout a long period, it is necessary to sow seeds at intervals of a few weeks. Those who grow for exhibition sow on a hotbed in a frame in February, and if this plan is carried out successfully splendid plants are obtained. There is, however, a chance that amateurs not skilled in the raising of seedlings in this way may lose the little plants wholesale through "damping off." I advise them rather to raise the seedlings in a frame in March; the plants being hardier will not so readily succumb to improper treatment. Those, however, who care to practise the plan of sowing in February on the chance of getting finer flowers, will be interested to hear of the method adopted by one who grows these flowers with great success. "Several years I have read of amateurs growing Asters from seed having serious losses with this popular flower. Others may care to know of the method I have followed for years with success. The first week in February I place in cold frames long stable manure, turning it over now and then. About the third week in the same month it is levelled, and I put about 2 inches of fine soil on the top, then sowing the seeds. These are only slightly covered, and the lights are closed until the seeds have germinated; a little air is given each day afterwards. For several years past I have not noticed the slightest trace of damping off, though each year I have grown between 2,000 and 3,000 plants." A commoner way of raising Asters, and one that will probably prove more convenient to most people, is to sow the seeds about the end of March in flower pots in light soil; a cold greenhouse is an excellent place for them to germinate. It is important to sow thinly, and to cover the seed very slightly with sand or sandy

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A BRILLIANT DISPLAY OF ASTERS.

soil. As advised for all seedlings, a piece of glass should be placed over the flower pot until germination takes place. If the soil is moist at the time of sowing, probably no water will be needed until the seeds germinate; whenever it appears dry water must not be applied through a watering-can, but the flower pot should be immersed almost to the rim in a bowl of water. I have in other parts of the book referred to the value of this item in the treatment of seedlings, but as Asters are extremely likely to damp off, it becomes most necessary in this case. When the seedlings are about half an inch high, they are transferred either singly into small, 2-inch wide pots or several are placed round the edge of larger pots, light sandy soil again being used.

At that time of year, early April, the temperature of the unheated greenhouse, provided it is a sunny one, will just suit the Asters. The night temperature will be somewhere about 50°, and as it rises during the day, air will, of course, be admitted, closing again before evening. If the little plants are kept near the glass and gradually hardened off before being planted out of doors in early May, they ought to make good progress, provided they are planted in well prepared ground—ground, that is to say, that has been dug and enriched with rotted manure. As with other half hardy annuals, seed may be sown out of doors in April, but this method will not answer so well for the bedding varieties as for the China and Ostrich Plume Asters, which seem hardier and give less trouble to the cultivator. I shall not attempt to name any varieties, for the simple reason that each seedsman has his own named sorts, and a selection can easily be made from any seed catalogue.

CAMPANULA (*Bellflower*).—The only Campanula that is classed as a half hardy annual is one called *macrostyla*, which has pretty rose-coloured flowers, and those who like plenty of variety in their gardens might do worse than try it. Its cultivation presents no difficulty, if seeds are sown in the greenhouse in early March, the seedlings being put out of doors in April where they are to bloom. It is commonly known as the Candelabra Bellflower, a title which has reference to its manner of growth. The flowers are large, and marked with violet on a white ground. Those who include it in their collections will have the satisfaction of knowing they possess a plant that, while of considerable merit, is not generally to be found in gardens.

CANNABIS (*Hemp*).—I wonder how many of my readers know that Hemp is a hardy annual, as easily raised from seed as *Mignonette*? I am not ashamed to confess that until a few months ago I did not know it myself! although as writer of a book with a title such as this, I suppose I ought really to be very much ashamed, or at any rate attempt decently to veil my ignorance. But are we not all, both amateur and professional, continually learning? I am sure I find it so, and frequently on going round gardens I am surprised at my ignorance. There seem to be so many things that one had not seen before, and often enough a really good plant that one knew previously

only by hearsay, or not at all. How many readers are there, I wonder, who would know the Hemp plant if they saw it? It grows about 6 feet high, branching out into quite a bushy plant; it has handsome deeply divided leaves of a particularly attractive shade of light green. It is of remarkably rapid growth, as may be judged from the fact that it reaches its 6 feet by July from seed sown in a greenhouse in March. It may be sown outdoors in April if there is no greenhouse accommodation, and then will naturally be at its best rather later. I can imagine that it would prove an excellent plant for filling a large lawn bed in those gardens where "subtropical gardening" is practised. At any rate, whether grown for a summer hedge, for forming a group in the flower border, or given the dignity of a bed all to itself, let me advise the reader, whether his garden is large or small, to include a packet of Hemp in his next seed order. I am sure he will not regret it, and at all events he is pretty sure to have something that his neighbours have not. The only injunction I would urge upon the grower is that he gives each plant plenty of room in which to reach its proper development, for only then is it seen at its best.

CARNATION, MARGUERITE.—Carnations are now very commonly grown from seed. Among them is the class known as Marguerite Carnation. From seed sown in February and March, the plants will commence to bloom in August, and continue in blossom for many weeks together. In southern counties they may be planted out of doors in April or May, but in Midland or Northern gardens they are most useful when grown in pots until the flower buds show; they are then serviceable for placing in vases in the outdoor garden. They may also be grown altogether in flower pots and will then flower splendidly in the greenhouse in early autumn. Full directions for their cultivation are given in the chapter on Carnations.

CHRYSANTHEMUM, PERENNIAL.—From seed sown in a warm greenhouse in January or February Chrysanthemum plants are obtained that will blossom freely the following autumn. Charming colour variety is given by a packet of seed. The Chrysanthemum is, of course, perennial, and the roots persist and flower from year to year, but even in the first year of seed sowing the seedlings make excellent plants, particularly if grown on in pots for greenhouse decoration. Directions for their cultivation are given in the chapter on Chrysanthemums.

CONVOLVULUS (*Bindweed*).—One of the most brilliant of annual climbing plants, commonly called Bindweed. Everybody knows the twining stems and brilliant blossoms in rich colour shades—crimson, purple, rose, white, etc. Although the individual flowers are fleeting, lasting but a day, they are freely produced if the plants are in a warm, sunny position. It is best to sow the seeds in small pots in the greenhouse in March, putting only one seed in each pot. This may seem unnecessary trouble to take with so common a plant, but it is the way to obtain fine plants that will give an abundance of showy bloom.

COSMEA.—This is one of my favourite half hardy annuals, and I strongly recommend it to the attention of readers of *THE COMPLETE GARDENER*. The charming single blossoms in various shades of rose, red, purple, and white are not unlike single Dahlias, although smaller, and they are freely produced. The plant has an additional attraction and value in its deeply divided leaves. From seed sown late in February or early March in the greenhouse, the seedlings being grown on for planting out of doors in early May, plants will begin to bloom in July, and continue to give blossoms for weeks together. Only the other day, the end of October, I came across a group of Cosmea, or Cosmos, as it is alternatively called, in full bloom, in a garden near Sheffield. The plant reaches a height of about 3 feet. Success is certain if the plants are put out in well dug and fairly light soil, in a sunny spot. To put them in the shade or a cold, heavy soil is to court failure.

DAHLIA.—Seeds sown in February in the warm greenhouse, or even in an unheated greenhouse, if it is sunny, will produce fine flowering plants by August, plants that will blossom until the frosts cut them down. Various kinds of Dahlias may be grown from seed in this way—Cactus, Pompon, Show and Single—but I think the best to grow from seeds are the Singles. The reader may learn all about them in the chapter devoted to Dahlias.

DIANTHUS (Pink).—Indian and Chinese Pinks are among my favourite half hardy annuals, and I would not like the summer to pass without my being able to enjoy the company of their charming and abundant flowers. They make splendid tufts 10 or 12 inches across, and, beginning to bloom in July, continue to reward the grower with blossom even after the frosts come in November. As I write—it is mid-November, and last night there were 6 or 8 degrees of frost—I could pick a bunch of Indian Pinks from plants raised from seed in a cold greenhouse in February last. The seed germinates pretty readily if sown in flower pots filled with sandy soil and kept glass-covered and shaded until the seedlings show through; they are grown on and put out towards the end of April or early May, according to the state of the weather. There are two chief kinds of these half hardy annual Pinks, and although they are classed as biennials, much better, I think, to treat them as annuals. *D. chinensis* is the Indian Pink, and *D. Heddegi* is the Japanese Pink; the latter is only half hardy and does not remain in bloom so long as the Indian Pink, which is hardy. However, the Japanese Pink compensates for its shortcomings in this direction, by providing larger and more richly coloured flowers than the Indian Pink. Being unable satisfactorily to compare the merits and demerits of one with those of another, I overcome the difficulty by growing both, and I would advise the reader to do the same. Procure a packet of each in February, sow the seeds in your greenhouse, plant out in May, then you will not have long to wait for blossom. Make the most of the Japanese Pinks while the summer lasts, for with the approach of

autumn their beauty fades. Long after they have gone the way of all flowers, the Indian Pinks will still be blooming merrily.

GAILLARDIA.—I would advise the many lovers of this fine old flower who have been disappointed with its behaviour after the first season to grow it from seed. It is classed as a perennial, but, unfortunately, it has the habit of dwindling and proving disappointing. This is particularly the case in heavy ground, and only in a warm soil can the Gaillardia really be said to be a true and satisfactory perennial. If, however, the reader grows his plants from seed, whether they are perennial or not need not concern him, for he will treat them as annuals, sowing the seeds in the greenhouse in February, growing on the plants, and putting them out in late April or early May where they are to bloom. Providing seed is sown at the date recommended, fine free blooming plants will result in late summer and will, in well prepared soil, be even better next year. Thus we may either treat the Gaillardia as an annual, raising fresh plants every year, or, keeping them for two years, raise fresh ones every other year. There are numerous varieties, and the would-be grower could scarcely do better than obtain a catalogue from a firm that makes a speciality of these, amongst other flowers. One of the Gaillardias, however, is a true half hardy annual, and is called *amblyodon*. It grows about 2 feet high, and has reddish flowers. It is raised from seed sown in the greenhouse in February.

KOCHIA (*Summer Cypress*).—Here is a plant that will come as a revelation to those who have never grown it before. Its popular name of Summer Cypress is particularly apt, for it resembles nothing so much as a Cypress in perfect miniature. It grows about 2 feet high, forms a most charming little bush of exquisitely symmetrical form. Strange to say, its beauty is not in the flowers but in the leaves. The flowers, in fact, are so inconspicuous, as often to pass unnoticed. The leaves are small, elegant, and of feather-like appearance; they are also of a particularly bewitching shade of light green. Even now I have not exhausted the merits of the Summer Cypress. I have, in fact, not mentioned its chief claim to consideration; this is found in the rich autumn tints which its foliage takes on as summer wanes. The whole bush becomes rich red or crimson. One can imagine no more striking, and at the same time uncommon, feature in the flower garden than a bed well filled with *Kochia trichophylla*. I find the best results are achieved by sowing the seeds in the greenhouse in early March, subsequently putting each plant singly in a small pot, and planting out of doors the end of April. By adopting this method one gets splendid specimens. It is as useful for the greenhouse as for the outdoor garden and has special claims on the attention of the possessor of an unheated greenhouse. If repotted finally into a 6-inch wide flower pot, plants as fine as those put out of doors are obtained. During the summer greenhouse plants of merit are none too plentiful, and this is all the more reason why one should cherish the *Kochia*.

NICOTIANA (Tobacco).—If there is one fault I have to urge against the white-flowered Tobacco that fills the garden with its fragrance at evening time, it is that it is an untidy plant. But this seems a small fault to find with a plant that is so delightful in other ways, especially in those of fragrance when night steals on, and in its willingness to grow and bloom in the shady border. Half hardy annual though it is, there are many amateurs who, captivated by the white Tobacco, treat it as a hardy annual, sowing it out of doors since circumstance (in the non-possession of a green house) compels them to do so. But I will presume—how easy it is for a writer to presume!—that the reader has a greenhouse, since by such presumption I am able to show how the finest Tobaccos are obtained. To be more practical, I would advise those without a greenhouse to purchase a few plants in April, plants that have been grown in the florist's greenhouse, since an early start with this, as with all half hardy annuals, is of quite real importance. Seed is sown in early March under glass; the seedlings are nurtured there until early May, when they are put outdoors where bloom is wanted. *Affinis* is the name of the white, scented Tobacco. Those who care more for colour than for fragrance may prefer to grow the *Sanderæ* Tobaccos, which have blossoms in various colours—rose, purple, pink, etc. What sounding of trumpets accompanied the advent of these new, coloured Tobaccos; yet I doubt if they have fulfilled the high expectations formed of them. Those colours that we placed so much store by are not altogether pleasing; there is more than a suspicion of dullness about them and—shall it be confessed?—the stigma of magenta attaches to some. I have said the worst of the coloured Tobaccos, but perhaps I have not sufficiently praised their good qualities. There will be no harm done if the reader grows a few and finds out for himself whether or not they come up to expectations, for to grow a plant that one has not grown before is never waste of time, even if it should prove to be not worth garden room—the good gardener can never have too many plants. I believe Messrs. Sutton now have a race of coloured Tobaccos with fragrant flowers. Noblest of all the Tobacco is *sylvestris*, a plant with large, handsome leaves, which in July are crowned by tall, robust spikes of white flowers. It is scarcely surpassed for a lawn group, and those who delight in deluding themselves that for a few summer months they are living in the subtropics by planting a "subtropical garden" certainly cannot afford to dispense with this giant Tobacco. An early start is most essential; seeds are sown in February in a warm greenhouse, then the seedlings will be fine little plants by early May, the time for planting outdoors.

PENTSTEMON.—Although I expect I shall be called to account by the critical reader for daring to refer to this well-known August blooming plant in a chapter on annual flowers, I must beg leave to say that it may be grown to flower the first year from seed sown in February in a warm greenhouse. The plants will be quite fair

specimens by late summer and early autumn, and cuttings may then be taken from the best varieties to form plants for another year. They form roots readily in a frame and need only to be protected from frost during winter.

PERILLA NANKINENSIS.—Those who are still enamoured of the bedding-out system—and how numerous, in spite of sharp criticism, they still are!—will find in this half hardy annual a plant that is of real value. Its merit lies in the richly coloured, dark, purplish leaves, which are most effective when associated in the flower garden with bright coloured flowers, particularly those of orange and yellow shades. It grows from 18 to 24 inches high. It is scarcely the flower for those without a greenhouse, for it needs to be sown in February; otherwise its full beauty is not reached until the summer is past.

RICINUS (Castor Oil Plant).—This is a handsome and much valued plant for the summer flower garden, and its merit lies in the richly coloured leaves. It needs to be grown in well dug ground in order to be seen at its best, and it is only when well developed that its attractiveness is realised. Well grown plants reach a height of 3 to 6 feet; it makes an admirable lawn bed, but it is scarcely a plant for the flower border proper. There its leaves have not the chance to show their beauty; moreover, it is a vigorous plant, and is likely to usurp more than its fair share of room to the detriment of neighbours less able to take care of themselves. It is a half hardy annual, and seed should be sown in a warm greenhouse in February, the plants being grown on in rich soil, and finally planted out in early June. There are several named varieties, of which Gibsoni and Bronze King are two of the best.

ROSE, FAIRY.—Those who have tried and failed in growing the ordinary outdoor Roses from seed, and this is not so easy as it would seem to be, should try their hand with the Fairy Rose, a miniature plant that begins to blossom when not more than two or three months old. Seed is sown in the greenhouse in March, the little plants being transferred singly to small pots when large enough to handle. They are repotted as becomes necessary. The semi-double blossoms are of light pink colouring, and make charming little pot plants. They are sometimes recommended for beds and borders out of doors, but they are not to be compared in beauty with the outdoor Roses, although very attractive.

SCABIOSA (Scabious).—The sweet Scabious is very deservedly a popular flower with amateurs, and they, disregarding the textbooks' description of it as perennial or biennial, very properly treat it as a hardy annual. It is such a delightful flower, however, that I would advise its being grown as a half hardy annual; that is to say, seed should be sown either in late February or early March in a warm greenhouse, the seedlings being subsequently put out of doors in late April or early May. The plants grow 2 or 3 feet high and bear flowers of

many quaint colour shades, varying from white through rose to mauve and almost black.

STOCK.—Amongst annual and biennial plants it is impossible to point to any one that can surpass the Stock for beauty and fragrance, whilst few plants remain in flower for so long a period. The garden Stocks of to-day are due entirely to the skill of the horticulturist, for they have been developed from a couple of European species: *Matthiola incana* of South Europe, and *M. sinuata*. These wild types have single flowers of moderate size. In the hands of the florist, however, many years of careful breeding and selection have resulted in varieties with large heads of flowers which exhibit a remarkable range of colour, the flowers in most instances being double. From the original white and reddish-purple, we now have crimsons, purple, white, rose, red, lilac, and cream or yellow, whilst the flowers are often $1\frac{1}{2}$ inches across. We may have Stocks in flower for a considerable period in the open border, for some kinds begin to bloom in May and others are scarcely over by the end of October.

They may be roughly divided into three groups: Brompton, Intermediate or East Lothian, and Ten-week. The last-named are the most popular and the most widely grown. Brompton Stocks are of biennial duration, and are cultivated in a similar way to Wallflowers. In some parts of the country they are very popular, and well grown plants may be met with $1\frac{1}{2}$ to 2 feet high and the same through, so densely covered by flowers as almost to hide the foliage. Ten-week Stocks are essentially summer plants, for they quickly grow to maturity and produce their flowers within three months of sowing the seeds. Intermediate Stocks may be grown under conditions which would suit either of the other kinds. They, however, arrive at maturity earlier than the Brompton Stocks, but not so quickly as the Ten-week varieties. Nurserymen and seedsmen subdivide the groups, more especially the Ten-week, as we find such titles as Imperial Ten-week, Wallflower-leaved, Large-flowering pyramidal, Giant German, Dwarf German and so on—each of which describes the peculiarity of some particular strain. As illustrative of the variations in colour found amongst varieties of Ten-week Stocks, seedsmen are in the habit of offering packets of seeds containing eighteen distinct colours.

The cultivation of Stocks is not difficult. Seeds of Brompton varieties may be sown out of doors in June, the seedlings being transferred to permanent quarters as soon as large enough to handle, or they may be pricked out in a bed 6 inches apart each way, and be placed in permanent positions in October. Plenty of room should be given for development, for side branches will be produced by strong plants. In cold parts of the country, plants are sometimes kept in pots in a cold frame to plant out in April. Seeds of Intermediate Stocks may be sown in boxes, and the seedlings potted singly in 3-inch pots in good soil to plant out in April, or they may be sown

in the greenhouse in February and planted out in May to blossom in August and September. Plants grown from autumn-sown seeds may be used with satisfactory results for greenhouse decoration in spring, providing they are kept growing through the winter in a cool, airy greenhouse. As a rule, 6-inch pots are large enough for them.

Seeds of Ten-week Stocks may be sown in boxes of sandy soil in March in a warm greenhouse. The young plants must be pricked off singly in a bed of good soil on a hot-bed in a warm frame. As soon as they are well established, the frame should be well ventilated in order to keep the plants sturdy. Plants treated in this manner are generally more satisfactory than those which have been pricked off in boxes, for in the latter case, if a fair amount of soil is not given, they become starved before planting-out time, and once this occurs, the plants never really recover. Those who have no convenience for raising plants in this manner may sow seeds out of doors in April. Quite as good results may be obtained, but the flowers will appear later. Ten-week Stocks should be given plenty of room for development; 9 inches apart each way will not be too much. Double-flowered forms are the most decorative and most popular. In the best strains a high percentage of double-flowered plants can be expected, but a few single ones will always be present. The season appears to have some effect on this, for after a bad year for ripening seeds a larger percentage of single-flowered plants is frequently observed. A glance at a seedsman's list will be a sufficient guide to the best kinds, and, as a rule, the colours are to be relied on.

CHAPTER XVI

SWEET PEAS

IN these days of the craze for Sweet Pea growing, when almost every other grower is a specialist on the subject and can discuss with you the most minute distinctions between varieties that are to all intents and purposes alike, it needs some courage to write a chapter on how to grow Sweet Peas. But I have this consolation, and it is very comforting, that those who know more than I do will doubtless not trouble to read it, while those who know less will, perhaps, find something worth learning. At the very outset we are confronted, as is not unusual in gardening, with conflicting opinions upon the most momentous point (momentous at least to the ever-increasing body of Sweet Pea growers) of soil and site. The expert tells you that you must on no account grow Sweet Peas on the same ground year after year; in fact, you must grow them on a fresh piece of land every year. If not, then the plants will succumb to pea mould, streak, and all the other ills that Sweet Peas are heir to, while the additional disappointment is promised of stunted growth, short flower stalks, and poor, puny blossoms. Tell all this to the man with a garden 20 feet by 60 feet and, he will laugh in your face and say to you, "This is what you tell me I *should* not do. Come and see what I *have* done and still do." You go, and he shows you as fine a lot of Sweet Peas as you could wish to see; Sweet Peas, moreover, that not only look well and so prove their value for garden decoration, but prove their worth on the show board also, thereby vindicating their claim to be really fine blossoms.

This is not a Sweet Pea fantasy woven in the depths of imagination, but a simple tale based on facts that have many times come to my notice. One writes to say that he has grown his Sweet Peas on the same plot for five, another for six, another for seven years, and so on, and I, who grow only for a garden show and find exhibiting altogether beyond the scope of my energies (or perhaps inhibited by the vagaries of

Time, which has such an extraordinary way of playing hide-and-seek—never being there when you want it!), even I can look out on a very fair plot of Peas that have occupied the same ground for three successive summers, and really look none the worse for it. And so I come to this conclusion—if you choke the land every autumn or winter with barrow loads of rank manure that scarcely has time to rot before the next lot is put on, then you may look for disaster from collapsing stems and leaves turning all sorts of queer colours. In these circumstances, the grower will very probably come to the conclusion that Sweet Peas need a fresh plot of ground every year. If, on the other hand, he waits for some sunny Saturday in October and makes a loose pile of Peas and sticks, putting a few old newspapers underneath, and a match to them, why he kindles a flame that acts like a magician's wand. The fragrance of the burning wood is like the scent of roses to the true gardener, and in the smoke wraiths that curl this way and that at the direction of the fitful wind—one moment sweep the ground, and another shoot sky high—the gardener sees visions of next year's vigorous leaves and bounteous blossoms. And the ash that is left behind—ah! take care of it, it is priceless. The pity is that so much vegetable life has to be sacrificed for so little ash; spread it with care and lightly fork it in, then, when next year's seedlings start on their quest for food at the bidding of the soft rains and waxing sunshine, be sure they will be grateful for the ashes of their departed friends.

Wood ashes, the residue of the garden fire, contain, we are told, much phosphates, and phosphates, as all may learn, form a valuable plant food. This, then, is the thing to do if your garden is so circumscribed that to grow Sweet Peas on fresh ground every year would mean that your rose garden would be here one year, there another, and somewhere else the next. There would be an endless chase round the garden, the roses always leading, but the Sweet Peas following close—close, that is, in respect of space, but distant in point of time, for always a year would separate them. In case I seem to have exaggerated the value of wood ashes, let me hasten to say that I do not wish to exploit them as a magic fertiliser. If this is the impression I have conveyed, I must disillusion the reader most rudely by telling him that wood ashes alone will not grow fine Peas either for home or exhibition, and impress upon him that he must dig deeply



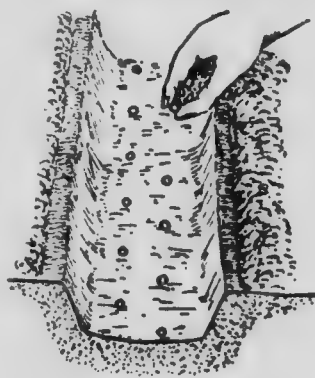
AN AMATEUR'S SWEET PEAS IN A NEW ZEALAND GARDEN.

also. As this prosaic proceeding is fully described elsewhere I need not, much to my relief and probably that of the reader, dwell upon it here.

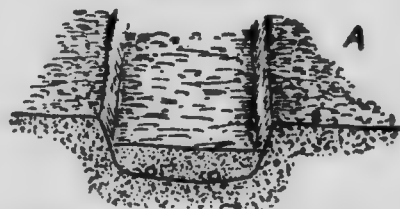
Sweet Peas for Exhibition.—I have never grown Sweet Peas for exhibition and probably never shall, so from



Sweet Pea seeds are sown in flower pots in early February.



Sowing Sweet Peas outdoors in rows in late February or early March.



The seeds are placed 1 to 2 inches deep in a shallow trench as at A, to leave room for earthing up as at B.

actual personal experience I have nothing to tell. Let me then invoke the aid of the one-time champion of all Sweet Pea growers, Mr. A. Malcolm, of Duns, and quote a few words of his:—"The preparation of the ground is the first step towards the production of exhibition spikes. Deep cultivation is essential. The trenches must be 2 feet deep, and the soil below that forked over. If the latter spit is of a poor nature, you may make the 2 feet above it as rich as you please, but

if not it must be worked into that condition by the incorporation of some old lime rubble, ashes, or similar substance. This should be done in good weather, when the soil works easily, and the rows can be made firm. A common error is to take out a trench in a piece of undug ground. When this is done and dry weather comes, cracks are likely to appear, and then, of course, the soil parts with its stored-up moisture. The whole border ought to be trenched, and the special part where the Peas are to be grown taken out afterwards. Old manure should be used and thoroughly mixed with the soil; this gives better results than placing the manure in layers, although a layer of fresh cow manure over the drainage is good and tends to retain moisture. A sprinkling of soil and lime reduced to powder, with a dusting of bonemeal as the work goes on, makes an ideal foundation. If the ground is prepared as advised the beds, if of circular form, are about 6 inches lower in the centre than the ground level, like a saucer. Similarly, the centre of a row will be the lowest part. I grow half my plants each way. The circles are 6 feet in circumference, with eight plants put out round each circle; six would be ample if it were certain that every plant would come true to name, but 9 inches apart is a good distance to plant out in any case."

Autumn Sowing.—One may either sow seeds in autumn or in spring. From the middle to the end of September or early October is the best time for autumn sowing, and this method of treatment gives the finest plants and the longest season of bloom. I recently had a note from an amateur telling me that he sows all his Sweet Peas in the autumn in flower pots. Early October is the time chosen. Three seeds are placed in a 3-inch wide flower pot, and these are stood in an open frame all the winter. The glass covering is put on only in the case of severe frost, snow, or heavy rains. The winter of 1909-10 was a mild one, and this grower scarcely ever had the frame top on at all. He says, and it is very true, that the great thing is to grow them as hardily as possible. The plants are planted out in March, and bloom earlier and last longer than those from seed sown in spring. The seeds may be sown out of doors in mid-September, and this is commonly done, but there is then some danger of losses from ground pests and birds. As the out-door seedlings progress it is an excellent plan to draw the soil round about them to give them protection. Some growers place a board each side of the row,

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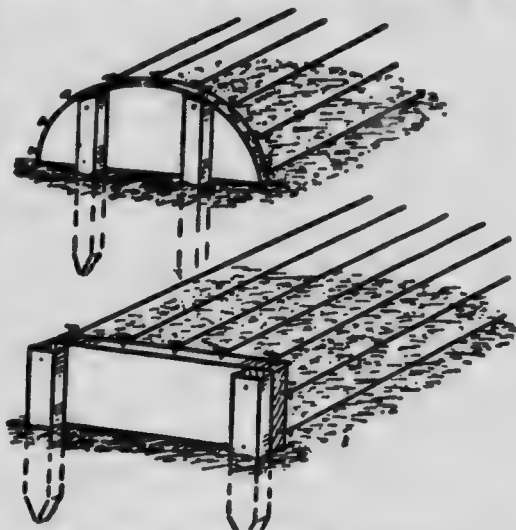
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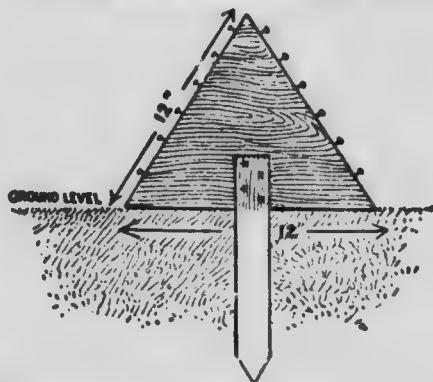
AN AVENUE OF SWEET PEAS IN MR. G. C. WAUD'S GARDEN AT BAILDON.

sink it a little, then place pieces of glass on the top and ends, thus forming a little greenhouse. But one may just as well grow them in pots in a proper greenhouse as go to all this trouble, and really the Peas do not need it. Autumn sown Peas begin to bloom in May and last in flower until autumn, if the fading blooms are gathered regularly. On cold, heavy ground it is scarcely worth while to sow outdoors in autumn, for many of the seedlings are apt to die. In light, warm soils it is much better than sowing in spring, and on ordinary land it is well worth while, since the plants come into flower about six weeks earlier than those from seed sown in spring.

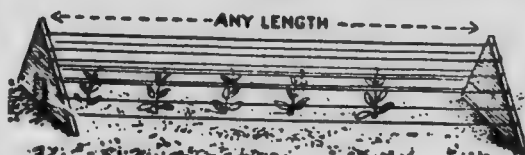
Sowing Seed in Spring.—There are two commonly practised methods; the seeds are either sown in flower pots in a greenhouse, three seeds in a 2½-inch wide pot in January or February, or they are



A simple way of protecting the seedlings from birds by using black thread as shown.



End view of another Sweet Pea Protector shown below.

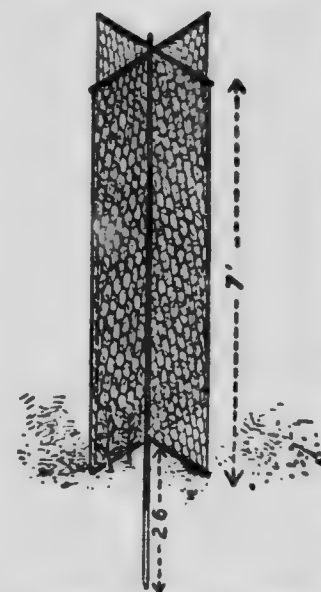


A home-made Pea Protector.

sown out of doors in late February or in March where the plants are to bloom. If sown in the greenhouse, the seedlings will show through the soil in three weeks' time or so, and must then be kept near the glass so that they do not become "drawn." They need all the fresh

air possible and a night temperature not above 40°. In fact, unless the weather is very severe, they are best in a cold frame, the lights being taken off on fine days. The great thing is to grow them for what they are—hardy plants. The first week in April is a good time to plant them out of doors, and each potful should be put out intact. It is a mistake to separate the plants. If grown in rows each potful of three plants should be put out at least 2 feet from its neighbour, and if grown in clumps four potsful on the line of a circle 3 feet across are sufficient. It is a wrong practice to crowd the plants; they do not then make such good growth, or last in bloom for so long. In fact, to crowd them is to shorten their lives. When the seeds are sown out of doors they may be planted 4 or 5 inches apart in shallow drills, and 1 to 2 inches deep. If all the seedlings come up they should be thinned, leaving them 8 or 10 inches from each other.

It is when the showers and sunshine of April start the little plants growing merrily that the sequel to the tale is told; if the grower



Dunker's method of training Sweet Peas. Two plants are put in each opening.

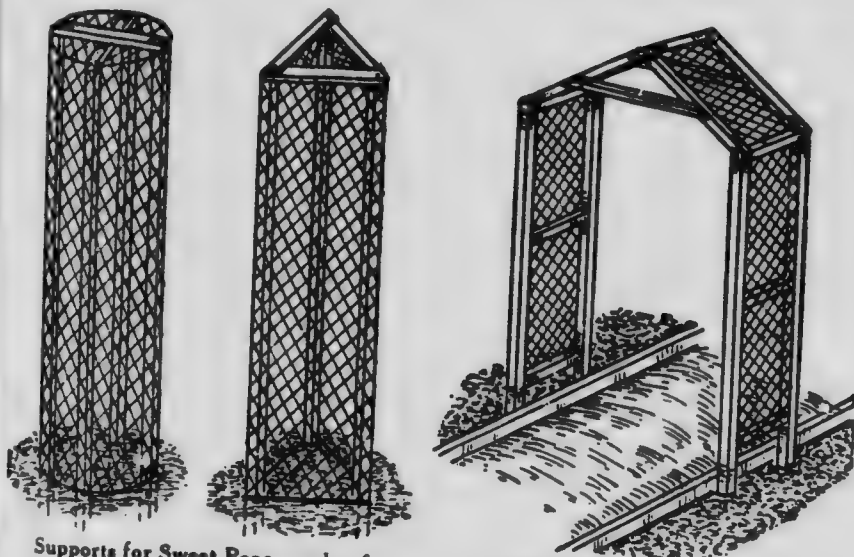


has neglected to dig his plot thoroughly, has used his pea-sticks for firewood, and thrown away the haulm, then—why, then, he has only himself to blame for the slow and weakly growth that the seedlings are sure to show. If, however, due attention has been paid to prosaic duties, the little plants will just romp away, soon reaching the top of the twiggy sticks placed about them. Then comes

TRAINING SWEET PEAS

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the necessity of providing for their support. Personally, I much prefer the ordinary hazel sticks that are bought in bundles; these seem to provide quite the most natural kind of support, and the tendrils take kindly to them. They should be placed some 6 inches away from the plants, and not be bunched at the top as they so often are. They ought to be put in straight, not with the tops leaning towards each other. Some growers employ various materials, such as wire netting, string stretched between uprights, and even fish netting.



Supports for Sweet Peas, made of wire netting and light wood.

A simple arch of light wood suitable for supporting Sweet Peas.

Special Sweet Pea trainers, chiefly of wood and wire, are to be obtained from dealers in Sweet Peas. I am able to give illustrations of Dunker's Sweet Pea trainer, invented by an amateur—Mr. Dunker, of Ilford—and sold by Messrs. Robert Sydenham, Ltd., of Birmingham. Mr. Eckford, of Wem, also offers special Sweet Pea trainers particularly useful for clumps. These have an advantage over the ordinary pea sticks, because one can store them away for the winter and use them year after year. Simplicitas netting is also good.

A method of growing for exhibition that used to be carried out successfully by some growers is not often, if at all, practised now, viz; that of restricting each plant to one stem. As

everyone knows who has grown Sweet Peas, the plants branch out from the base and, if there is room, develop into bushes. The single stem method is to remove all side shoots, and to train the single shoot to wire netting. Fine blooms are obtained this way, but, of course, comparatively few of them, and the decorative value of such plants is *nil*. Several instances have been recorded of the remarkable dimensions a single Sweet Pea plant will attain if given the chance to do so, and the chance in this case resolves itself merely into good soil and unlimited room. I have a photograph in front of me showing a plant some 8 feet high and 2 or 3 feet through.

There is really little to be said with reference to the treatment of Sweet Peas during summer—little that is exceptional. One of the chief aids to success with this, as with most other plants, is to use the hoe frequently that the surface soil may be kept loose. Especially is hoeing necessary the day after the plants have been watered, otherwise in hot, dry weather the soil will, in gardening phraseology, "cake"—in everyday English, it will become hard and large cracks will soon appear—a condition of things that it is scarcely necessary to say is inimical to successful plant growing. The presence of weeds is faithful evidence that hoeing has been neglected, for no weeds can thrive in the plot that is frequently hoed.

The Sweet Pea is a vigorous plant that appreciates extra nourishment applied in the way of manure, and from May onwards is the best time to give manurial help. There is nothing better perhaps than liquid manure from the farmyard, but it is often unobtainable; when it is to be had, the plants may be watered with it once a week from May onwards. It is given very weak at first—say three parts water to one part manure, the strength being gradually increased. Manure water should not be given when the ground is dry; in that case clear water is given first. Mr. Malcolm uses sheep's manure and soot in liquid form. Soot is an excellent garden fertiliser, either for sprinkling on the soil and forking in or for use as a liquid. To make the latter, fill a bag with soot and place in a large tub, filling the tub with water. The tub may be filled several times before the value of the soot-bag is exhausted. There are many patent fertilisers on the market, and if given diluted in water or sprinkled on the soil, they are capital aids. Sweet Pea manures are also supplied by growers who make a speciality of Sweet Peas. Directions as to the use of various artificial manures will be found in the



SWEET PEAS AND OTHER HARDY FLOWERS IN A GARDEN NEAR LONDON.

chapter devoted to that subject. There is one point of importance in applying manure—i.e. to give it weak and frequently, rather than strong and less often. The least overdose will cause the buds of Sweet Peas to fall.

Sparrows and ground insects become a terrible trouble as soon as the seedlings come through the soil, and means must be devised for circumventing their attacks. For driving away slugs, snails, etc., there are many patent preparations now on the market, as, for instance, Vaporite, Kilogrub, Alphol, and Slugene. They are dug into the soil before seed sowing or planting, or even in the autumn, when the land is being prepared; they give off fumes that are obnoxious or even fatal to insects in the soil, and are to be recommended as being convenient and reliable. Another way of getting rid of slugs and snails is, in spring, to scatter a little powdered lime and sulphate of potash round about the Sweet Pea plants.

Soot also is to be recommended. Nothing short of netting out the birds will keep them away. Cooper's Pea guards are excellent things for protecting germinating Sweet Peas, but, unfortunately, the latter soon get too big for them. As soon as the plants come through the soil I put small, twiggy sticks to them, and cover these with ordinary garden or fish netting, so that the birds cannot possibly get to them. This is the cheapest and most economical method I know. Then, when it becomes necessary to put the bigger sticks to the plants, the netting is removed and the Sweet Peas, which by then, however, have lost much of their toothsome-ness, have to take their chance. If the birds are really troublesome, and every year they seem to appreciate the Sweet Peas more and, consequently, continue to attack them later, it is helpful to syringe the leaves with a solution of quassia to make them distasteful to the birds. The sparrow is the chief offender, but the tits (especially the blue tit) are also fast getting into the bad books of growers in the country. A simple and, I am assured, a certain plan to keep them away from the Peas is to hang up pieces of fat mutton some distance away. The tits are very fond of these dainty (?) morsels, and possibly the sparrows are too. I have always found it a good plan to feed the birds with breadcrumbs; so long as there is food about they prefer that to the Peas. I have had quaint proof of the astonishing fondness of sparrows for starchy food. During last summer I had occasion to shade my greenhouse

by syringing a mixture of flour and water on the glass. I was at first surprised, and was often amused to see sparrows on the glass pecking away at the "shading." I am afraid they got little for their pains. It stands to reason that unless one keeps the plants well supplied with water and removes all flowers as they fade to prevent the formation of seed pods, that the blossoming will diminish.

The question of varieties is a perplexing one. At the moment of writing I have particulars of over a hundred new varieties that will be sent out in 1912. And these, needless to say, are only some of the many that will appear. It will thus be seen how difficult it is to make a selection that, while being up to date, shall include only those that are worthy. However, I do not think that many will quarrel with those mentioned below. Everyone knows, I suppose, that there are two broad distinctions between Sweet Pea flowers. There are those with plain edge to the standard (the upper part of the bloom) and those having a standard of waved form. Those belonging to the latter class are far more beautiful than the former, and bid fair soon to supersede the others completely. Still, a few of the plain standard sorts are grown even for exhibition, owing to their distinct colouring, but nearly all these now have their colour counterpart in waved form.

Varieties with waved margin.—America Spencer, striped red and white; Apple Blossom Spencer, rose and blush; Barbara, salmon; Charles Foster, bronze pink shades; Cherry Ripe, cerise; Clara Curtis, primrose; Mrs. Routzahn Spencer, cream and rose; Countess Spencer, pink; Edna Unwin, orange red; Eric Harvey, white with rose edge; Etta Dyke, white; Evelyn Hemus, cream with rose edge; Flora Norton Spencer, blue; Red Star, brilliant red; Guy Hemus, blue grey; Lavender G. Herbert, lavender; Maud Holmes, crimson; Mrs. Hardcastle Sykes, pink; Mrs. Townsend, white and mauve; Paradise Carmine, rose red; Paradise Ivory, ivory white; Tom Bolton, maroon; Tennant Spencer, purple mauve; Mrs. Andrew Ireland, pink and blush.

Varieties with plain margin.—Black Knight, maroon; Bolton's Pink, pink; Dorothy Eckford, white; Helen Pierce, mottled blue and white; Henry Eckford, orange salmon shade; Jeannie Gordon, rose and buff; King Edward VII., crimson; Lady G. Hamilton, lavender; Lord Nelson, blue; Mrs. Walter Wright, bright mauve; Prince Olaf, flaked blue and white; Sybil Eckford, lemon and pale rose.

CHAPTER XVII

CARNATIONS

THE Border Carnation is at once the most delightful and most disappointing of plants—delightful in that none would wish to be without its charming, fragrant flowers, disappointing in that their season is so short. They come in mid-July, and alas! in a month's time we have seen the best of them. But it is now a simple matter to have Carnations all the year round if various types of the flower are grown, and we shall see that success in this matter is really quite a simple affair. But first of all let us consider the Border Carnation, which includes the Picotee. It may be well to describe the "points" of a select Border Carnation; while some readers are satisfied with quantity of bloom, others may place more value on quality, and in the Carnation it is difficult to get both. No Carnation can lay claim to be considered a variety of quality unless it has a smooth edge and a calyx that does not "burst." A weak calyx, one that bursts so that the petals fall down, is a grave defect, and no Carnation is really worth growing that is so disfigured. It is true that we may support them with rubber bands, but he must surely be a fanatical enthusiast who will claim for any flower that it is worth garden room so long as its petals have to be held together by a rubber band! The old favourite pink variety called Burn Pink or Raby Castle is a notorious "burster," but this lingers on in gardens in spite of this grave defect. It is so free blooming and so dainty that if I could forgive this fault in any Carnation it certainly would be in Raby Castle. After all, only a proportion of its blossoms have a split calyx, and I cannot go so far as to condemn it.

The question of a smooth edge to the petals arouses in me little enthusiasm. There is, I think, no doubt that a Carnation with a plain petal edge is a better flower and of more refined appearance than one with a serrated or saw-like edge, but I would not discard a Carnation for that reason alone, if it had the saving graces of fragrance, hardiness, and freedom of flowering. The raisers of Carnations pay

too much attention to what one may call artificial qualities, and neglect those that make the flower most valuable to the gardener. In fact, they have now produced a race of plants—they are known as exhibition Carnations—some of which are scarcely to be relied upon to pass the winter out of doors—that produce a few remarkably fine blooms of perfect form as defined by the florist's standard. Alas! as a rule they lack fragrance. These are of little use to the gardener who wants a good return for his time and money in the way of plenty of flowers. He may get a dozen blooms from one plant; he may get a few more, or he may get less.

But there are still plenty of connoisseurs of the Carnation who find delight in purity of form, in correct and well-defined colouring, and take no thought for the number of blooms on a plant, or their lack of fragrance. And who are we, reader, you and I, that we should decry those who find points of beauty in a flower different from those we seek ourselves? It is the flowers we love, and if one finds more enjoyment in form than fragrance, in colour than in constitution, why, then, let it be so; we all join hands and hearts in a common cause, the love triumphant of our favourite flower. But it is the duty of a writer to be impartial, and so while bearing with those who find enjoyment in the exhibition Carnation, a flower of exquisite form but often weak constitution, I have to point out that they are disappointing for garden decoration. Border Carnations grown from seed give sheaves of blossom the year following that in which seed is sown, but a small percentage of the blossoms will be singles, while most probably none will compare for beauty of individual flower with the fine named sorts. However, more of these anon. Let us see how we may have Carnations all the year round. We shall have to grow three distinct types—the true Border Carnations and Picotees, the Marguerite Carnations, and the Tree, Perpetual or American Carnations, as the third type is variously called.

Border Carnations and Picotees thrive best in a "clayey loam"; that is to say, in a soil containing about 60 per cent. of clay; to be more explicit still, such soil as is found in the majority of well-tilled gardens. A soil that contains too much clay, that becomes very wet in winter and cracks and bakes in summer, is not very satisfactory, but it can be improved greatly by deep digging, by exposure

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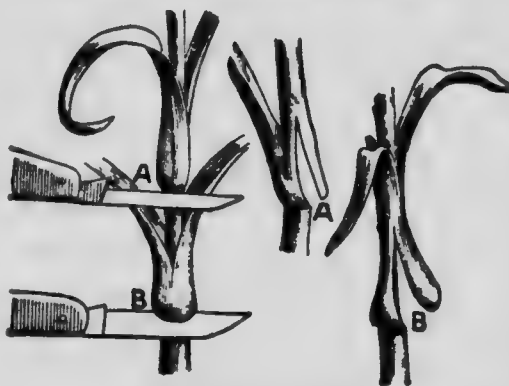
AN EXCELLENT WAY OF GROWING BORDER CARNATIONS IS IN LONG NARROW BEDS SEPARATED BY GRASS PATHS.

to frost and sunshine, and by mixing with it such materials as road scrapings, leaves, vegetable refuse, wood ash and lime and brick rubble. Soil of this character should be thrown up roughly in autumn, so that it may derive full benefit from frost, snow, sunshine and rain; then in February it will crumble at the touch of spade and fork, and if well dug over once or twice will be in good condition for the Carnation plants, taken from flower-pots, by the middle or end of March. Light soils (those in which sand and gravel preponderate) are improved by the addition of chopped turf, vegetable refuse, leaves, and well-rotted farmyard manure, preferably cow manure. Planting should be carried out in autumn, in September, or early October. I recently had a curious request for information from a Carnation enthusiast. He had read somewhere that the Carnation border should be kept loose by hoeing during the summer months, and accordingly he put his information into practice. A friend who had the reputation, locally at least, of being a good grower of Carnations, chanced to call and expressed great surprise on seeing the loose soil. Asked what he had been doing, the garden owner said, "Hoeing." "Then if you take my advice," was the reply, "you will just tread the soil down again and make it as hard as a back yard." Not doubting the practical advice of his professional friend he promptly carried out these instructions, and when I heard from him he said the soil between his Carnations resembled nothing so much as a children's playground.

The issue had been confused, for the Carnation can only be successfully grown when the soil is firm about the roots, yet kept loose on the surface by means of hoeing. The hoe has often been described as "the gardener's best friend," and there is no doubt if intelligently and regularly used from March onwards, it saves a great deal of labour in weeding and digging, besides being of direct benefit to the plants. A loose surface soil prevents loss of moisture by evaporation, and dispenses with the need for watering, which is not an unmixed blessing. Unless the hoe is run through the soil the day after, the surface becomes hard and under the influence of sunshine "cakes and cracks." Plant firmly and keep the surface soil loose are two admirable mottoes for the grower of Carnations and every other outdoor plant. There is none that would not be the better for those precautions. The Carnation loves a sunny spot, and is not seen

at its best in shade ; this, however, is a truism, for it refers to most plants. Fortunately a smoky atmosphere such as prevails near large towns has little if any adverse effect on Border Carnations, so they may be recommended with confidence to the town gardener. While Carnations will grow well in unmanured soil they, in common with almost all other plants, give greater satisfaction when well rotted stable manure is dug into the ground some 12 inches or so beneath the surface.

Carnations from Cuttings.—It is pretty well known, even among amateurs of little experience, that Carnations are generally increased by layering ; when an increased stock



Layering Carnations.

A, A, shows how the "tongue" is made through one joint
B, B, tongue cut across two joints (the better way).

of any special variety is required, layering is almost compulsory. It is at least the most convenient and satisfactory way. Recourse may be had to cuttings, which will form roots pretty readily if inserted in shallow boxes filled with sand or very sandy soil. The sand or soil must be kept warm by placing the boxes on hot-water pipes ; they must also be covered with glass. An occasional syringing so that the sand is kept moist is necessary. July is the time to put in Carnation cuttings, but a greenhouse is necessary. They form roots in three or four weeks.

Layering Carnations.—A glance at the accompanying sketches will make clear the process of layering. One selects as many shoots as plants are required, choosing those that are most conveniently brought to the ground. The lower leaves are stripped from an extent of 3 or 4 inches of stem, this is then notched by inserting the sharp blade of a penknife through the centre of the stem towards the top of the bared portion and between two joints. By pressing the knife downwards through a joint and bringing it out through the side of the stem before the next joint is reached the necessary notch or "tongue" is formed. There remains but to peg the shoot

LAYERING CARNATIONS

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Layering Carnations.

A, Peg improperly placed ; B, Peg in proper position.

mould and sand intermixed. Pegging down the shoots is accomplished by means of small wooden pegs, proper layering pins specially made for the purpose, or even hairpins. Layering is carried out in late July and early August, and may, if necessary, be continued in September, but the earlier times are to be preferred, since the shoots then become well rooted before winter sets in. They are usually pretty well rooted in six weeks. I usually peg them down the first or second week in

firmly into a little bed of prepared soil, and when all the shoots are layered, to cover them with an inch or so of more prepared soil. They need no further attention beyond that of keeping the soil moist by occasionally syringing in dry weather. The prepared soil consists of ordinary sifted loam or turfy soil with some leaf



Carnation layer rooted and ready for planting.

A, Piece of stem to be cut off ; B, Depth of planting.

August, and take them up about the third week in September.

Then comes the question, "What shall be done with them?" They may be either potted up in 3-inch wide flower pots and kept in a frame during winter to be planted out in March, or they may straightway be put out in a border or bed where they are to bloom. A third method is to leave the shoots just as they were pegged down. In this way large tufts are formed and plenty of flowers for cutting are obtained. In some gardens, notably in those of Sir Jeremiah Colman, at Gatton Park, Surrey, this method is largely practised, and a far larger quantity of bloom is obtained than when single plants are put out. Unless the garden soil is cold and heavy and gets very wet in winter, it is best to plant out the Carnations as soon as they are rooted, since the better established they are before winter comes the greater will be the grower's success. It is a mistake to dig up the new border or bed the day the Carnations are put in. It should be dug up roughly and manured some weeks at least beforehand, then the soil will become what the gardener expressively terms "sweet."

At least this represents the expert's ideal; the amateur will depart from it more or less according to his own circumstances and convenience. But it is really bad gardening to take up one crop and put in another before the soil has been well turned and exposed to the air. A suitable distance apart to put plants for garden decoration is 12 inches. If the Carnations are wintered in a cold frame, they must have air on all favourable occasions. Very little water indeed must be given from October until February. If the plants are frequently watered, the leaves will soon begin to droop, and finally fall. They need watering occasionally, of course, but once a fortnight, or perhaps once a month in the depth of winter may be often enough. Scarcely any hardy plant is more susceptible to an excess of water at the roots than the Carnation. Cold is rarely fatal to ordinary border varieties, but wet will often kill them in winter.

Those who care to grow Border Carnations in pots should replot them in March into pots 6 or 7 inches in diameter, and grow them on in the cold frame if the weather is indifferent, or out of doors if good, bringing them in the greenhouse when blossom buds show. They must, of course, be kept perfectly cool, the ventilators being left open all night. The advantage

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BEDS OF BORDER CARNATIONS.

of flowering them in the greenhouse is that the blossoms are seen in perfection, being unaffected by inclement weather. It is from plants grown in this way that Carnation fanciers obtain their best blooms, and under these conditions that cross-fertilisation is best effected.

Let us return for a moment to the plants growing out of doors. The frequent use of the hoe and a weekly or a fortnightly sprinkling of some good artificial manure, such as Clay's Fertilizer or Guano, to the soil will do much to ensure a steady, vigorous growth. The staking of Carnations is a matter of importance, for if this is not attended to in good time the stems will get bent and otherwise deformed and the flowers spoil. The best plan of all is to use the patent coil stakes which are made especially for Carnations. Perhaps their greatest advantage is that tying is dispensed with—one has merely to dispose the stem in the coils of the stake and it is safely held. An improvement even on this is found in Green's plant support, which has a ring at the top to support the blooms.

Autumn Carnations.—The Border or summer blooming Carnations are usually over by about the third week in August. Then, unless one has a large stock of the Tree or Perpetual varieties, there is a gap in the fragrant ring with which we are attempting to encircle the months of the year. How can we supply the missing links of the flower chain? Why, simply by growing Marguerite Carnations. As I write my greenhouse and garden can show a wealth of blossom from these. It is now late in September, and they took up the running immediately the border varieties were over. Marguerite Carnations are charming flowers. They do not, it is true, compare with the named sorts in point of size and form, but they have the saving grace of fragrance, and most of them are double. Another point in their favour is that they bloom in about six months after sowing the seed. The disadvantage is that they are only annuals, or at least best grown as annuals, and a fresh supply has to be raised every year. But this only adds to the zest of growing them, for they possess the fascination that attaches to all plants raised from seed—the fascination of the unknown. Seed may be sown any time early in the New Year. February is as good a month as any; the plants will then begin to bloom in early September or late August. I sow seed in an unheated greenhouse that faces due south. It germinates in two or three weeks, and when

the seedlings are half an inch or so high, they are put singly in small pots, or dibbled 2 inches apart in soil-filled boxes. They are grown in the greenhouse until, say, the middle of April, or as soon as there are signs that genial weather has set in, and are then planted outdoors. In late August they may be carefully dug up and potted in 6-inch wide flower pots. If kept well watered they will give any quantity of blossoms for a month or two, until, in fact, the Tree Carnations are in bloom. It is necessary to soak the plants the day before they are dug up, or many roots may be broken. It is better to plant them out in April and repot them in late summer than to grow them in pots throughout, at any rate in the southern counties. In the midlands and north it is perhaps as well to keep them in pots all the time, but they are, of course, kept out of doors. In southern gardens they may be left to bloom outdoors if desired, although the chances are that in a cold, wet autumn many buds will never open as they would do in the greenhouse. In midland gardens and those still farther north, it is quite necessary to bring them into the greenhouse. Marguerite Carnations may be sown in September, and if grown in a cool greenhouse will bloom in spring.

Winter Carnations.—Probably no flower has made greater progress during the last six or eight years than the Tree or Perpetual Flowering Carnation. Whereas ten years ago the varieties were few in number and comparatively poor, there are now innumerable sorts of the greatest beauty—plants with long-stemmed flowers in many charming colours, flowers, too, that are very freely produced in autumn and early spring and fairly freely throughout the winter. Cultivation is not difficult if the grower has a greenhouse in which a minimum night temperature of 50° or so can be maintained during winter. They are increased by means of cuttings taken preferably in January, February, or March. They may also be raised from seed, which, if sown in January, will produce plants that will bloom in the ensuing autumn and winter. Cuttings are taken from the side growths that are produced by the main stems. If about 2 inches long, cut through beneath a joint and the two lower leaves removed, they will root readily in boxes filled with sand, or with very sandy, sifted soil placed on hot-water pipes, covered with glass and shaded if necessary from sunshine. They take usually about five weeks to form roots. When rooted each is potted singly

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PERPETUAL-FLOWERING CARNATIONS GROWING OUT OF DOORS IN A GARDEN NEAR OXFORD.



in a small pot, and after being kept in a closed case for a few days is given ordinary greenhouse treatment. The chief difficulty experienced by amateurs after they have overcome the initial one of striking the cuttings—which, by the by, may be induced to form roots without bottom heat—is that of “stopping” or “pinching” the growths. This is necessary to induce a bushy habit of growth. The shoots are first “stopped” when well rooted in the small flower pots; this will cause several shoots to grow, and a second “stopping” is given when the plants are nicely rooted in larger pots. From the small pots they are transferred into those 4 inches wide, and finally, when ready, into those 6 or 7 inches wide. To “stop” a shoot one nips off the point when the growth is, say, about 3 inches long. From the end of April onwards the plants are grown out of doors in a cold frame, usually being kept in the flower pots the whole time. They may, however, be planted out in a sunny border to be lifted and potted in early September. It is scarcely necessary to add that careful attention to watering, with an occasional sprinkling of fertiliser, staking, tying and other cultural details will secure the best results. If placed in the greenhouse in September, the plants will begin to bloom in October, and continue to do so more or less throughout winter and spring. In fact, if planted out of doors in May they will give quite an excellent lot of blossoms all through the summer, and in this they possess a great advantage over the border Carnations, which bloom for a few weeks only. In fact, of such importance as an outdoor flower, the Perpetual Carnation now become that growers take cuttings in August for the purpose of providing plants that will bloom not in winter but throughout the following summer.

The name “Border Carnation” is only a general one, and defines no particular type. Border Carnations, in fact, are classified into the following divisions:—

Singles.—These are perhaps the most generally popular; the flowers are of one colour shade only. Some of the best varieties are these: Almoner, yellow; Agnes Sorrel, dark crimson; Benbow, buff; Brigadier, scarlet; Daffodil, yellow; Bridegroom, pink; Cardinal, scarlet; Duchess of Wellington, lavender; Enid, rose; Elizabeth Shifner, buff yellow; Ellen Douglas, silver grey; Helen Countess of Radnor, crimson; J. Cutbush, scarlet; Hildegard, white; Lady Hermione, salmon; La Milo, pink; Lady Roscoe, blush white; Miss

Willmott, coral red ; Park Ranger, heliotrope ; Master F. Wall, blush ; Mrs. Nicholson, pink ; Queen of Carnations, white ; Splendour, purple ; Mrs. Marshall, crimson ; Robert Bruce, apricot.

Fancies.—These are distinguished by a ground colour of various shades (it may be white, yellow, buff, or some other colour), this being variously marked with stripes, streaks, etc., of another colour, or of two colours. Good sorts are : Banshee, lavender and scarlet ; Cardinal Wolsey, crimson and buff ; Chanticleer, rose red and yellow ; Charles Martel, scarlet and white ; Falca, heliotrope and buff ; Grand Dame, lavender and apricot ; Guinivère, rose and apricot ; Juno, rose and apricot ; Erl King, rose and buff ; Orlando, rose and apricot ; Rony Buchanan, rose and terracotta ; Mandarin, scarlet and yellow.

Bizarres.—Bizarres and Flakes are chiefly grown for exhibition, and are at once the pride and joy of Carnation fanciers. Bizarres are subdivided as follows : Crimson, marked with crimson and purple on a white ground ; scarlet, with scarlet markings on a white ground ; pink and purple, marked with deep shades of these colours on a lighter ground.

Flakes.—These also are variously marked with colours on a light ground, and are classed as purple, scarlet, and rose, according to the colour of the flake.

Picotees.—The Picotee is merely a type of border Carnation, and its characteristic is a line of colour at the margin of each petal. There are yellow ground Picotees and white ground Picotees, which are again subdivided according to the width of the colour line. There are thus : Heavy purple edge, light purple edge, light red edge, heavy rose and scarlet edge, light rose and scarlet edge. These are distinctions that have interest chiefly for the exhibitor, who has, naturally, to pay close attention to the type of flowers, since separate classes are arranged for them at exhibitions. A true Picotee should have no markings at all on the ground colour beyond that at the margin of the petal. A flower that does not conform to this standard is classified as a fancy. A packet of mixed Carnation seed will often give blooms of every type.

Yellow ground Picotees : Abbott, purple margin ; Bachelor, lilac-rose margin ; Badoura, rose margin ; Eldorado, bright rose margin ; Empress Eugénie, rose margin ; Mrs. Walter Heriot, rose margin ; Henry Falkland, bright rose margin ; Mohican, light rose-red margin ; Lady Sophie, purple margin ;

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THE CHEDDAR PINK (*DIANTHUS CAESIUS*).

Othello, crimson margin; Tennyson, crimson margin; Lauzan, purple margin. *White ground Picotees* (with red margin): Acme, Charles Hardman, Ganymede, Etna, Lena, Martial; (with purple margin) Amy Robsart, Calypso, Lavinia, Mrs. Openshaw, Portia, Silvia; (with rose and scarlet margin) Clio, Duchess of York, Mrs. Beswick, Mrs. Wm. Barron, W. H. Johnson, W. E. Dickson.

Border Carnations from Seed.—Those who have only grown Carnations in the common way from layers can have no conception of the rich harvest of blossom that results from seedling plants. And what exquisite variety there is, too, among the flowers! One may have Selfs, Fancies, Picotees, Flakes, Bizarres, all from the same packet of seed. I have now in my garden (it is autumn) Carnations raised from seed sown in an unheated greenhouse in February. I have given them only ordinary cultivation, and they have largely to look after themselves, yet, even now, some seven months from seed sowing, they vary from 12 to 16 inches across; each plant is, in fact, already a good-sized tuft. They will not bloom until July, so have still some good growing months before them. I am looking forward to the delight of being able to gather little sheaves of blossom, and I know that if all goes well I shall not be disappointed. Scores, even hundreds, of blossoms may often be gathered from one plant. There is no difficulty about raising the seed providing it is sown in pots of moist, sandy soil, covered with a piece of glass and kept shaded. The seedlings are put separately into small pots, 2 to 3 inches in diameter when an inch or less high, sandy soil with some leaf mould being intermixed. The little plants remain in these pots in the greenhouse until about the middle of April, when they should, if possible, be put out where they are to bloom about 15 inches apart. It is not wise to transplant them again. They will not bloom the same year in which seed is sown, but in the following. Those who do not possess a greenhouse are not debarred from growing Carnations from seed. The plants are hardy enough and come readily from seed sown in a prepared border outdoors, or in boxes of sandy soil, in March or April. Seeds are commonly sown in greenhouses earlier in the year, so as to give the plants a longer season of growth, and rather better plants are thus obtained.

Malmaison Carnations are not, it must be confessed, everybody's flower. To me they are the least attractive of

Carnations, although they are certainly imposing enough, but there is no grace, no elegance about them; in these respects they compare unfavourably with the border and tree varieties. This would not matter so much perhaps, for tastes differ so widely, and it needs various kinds of flowers to suit them all, but the bother is that Malmaisons are the most difficult of all to grow. They are not much grown by amateurs; it is chiefly in large gardens where every convenience is at hand that they are found. In common fairness, however, let it be said that most of them are deliciously fragrant. They need the shelter of a greenhouse where in winter the temperature does not fall below 50°. They need large flower pots 7 to 8 inches in diameter, and a soil mixture of loam (turfy soil) with a fourth part peat, another fourth decayed manure, as well as a free sprinkling of sand. They dislike a close, damp atmosphere, and conversely they like dry, airy conditions. They are peculiarly susceptible to a disease known as spot, which greatly disfigures the leaves and spoils the plants. This is almost certain to appear if a close, moist atmosphere prevails in the house where they are grown. Malmaison Carnations are increased by layering, but in this case the young shoots are pegged down in the soil (in the flower pot) in which the parent plant is growing. Layering is carried out as soon as the flowers are over, in early summer, and when they are nicely rooted (in from four to six weeks) they are potted singly into small flower-pots and grown on for blooming the following year. Cuttings may also be taken and made to form roots in sandy soil under a bell-glass or handlight in the greenhouse. Layering is to be preferred, but this is not possible when the shoots are too far from the soil. In this case one is compelled to take off the growths and treat them as cuttings. Malmaisons flower chiefly in May.

Pinks.—Border Pinks, both named and unnamed varieties, are great favourites, and no garden can afford to dispense with them. The named varieties, of which some of the best are: Mrs. Sinkins, white; Her Majesty, white; Ernest Ladhams, crimson; Anne Boleyn, purple rose; and Mrs. Lakin, white and crimson, are increased by "pipings" or cuttings, taken in June, or the roots may be divided and replanted in late September or early October. The Garden or Seedling Pinks, now to be had in great variety, are taller growing plants that give a profusion of blossom. They are easily raised from seed sown in the greenhouse in February as recommended

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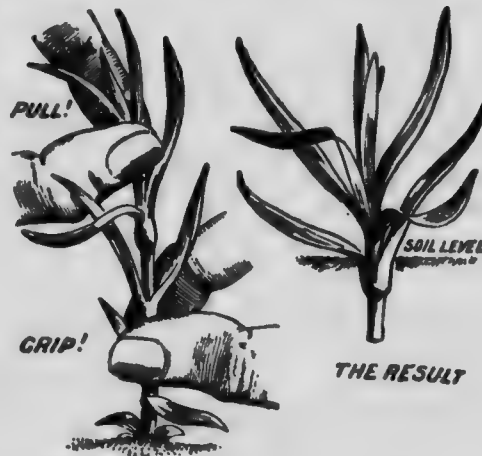
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GARDEN STEPS BORDERED BY ALPINE PINKS.



for Carnations. If proof were needed of the ease with which Seedling Pinks are grown, it may be found in the illustration that shows a self-sown seedling growing in a gravel walk (p. 58). Pinks prefer a rather light soil or, at all events, one that is well drained. They are never so happy in heavy, wet ground. Everyone knows what a charming margin to a flower border is formed by the Border Pinks, particularly the variety Mrs. Sinkins. It is not surpassed as an edging plant, for when not in bloom the grey foliage is pleasant to look upon. The Chinese Pink is referred to in the chapter on Half Hardy Annuals. Napoleon III., one of the Mule Pinks, is a most handsome flower; the blooms are crimson, and a patch at the front of the flower border or in the rock garden always attracts attention. The Laced Pinks (great favourites with florists for show purposes) are charming old flowers, but they are not so valuable for the border. There are many very beautiful little plants among the Alpine Pinks that are indispensable for planting in the rock garden; such, for instance, as *Dianthus cæsius*, *alpinus*, *deltoides*, *neglectus*, and others.



Making and planting a Pink piping

CHAPTER XVIII

THE ROCK GARDEN

A WELL-MADE, tastefully planted rock garden, containing a fairly comprehensive collection of Alpine plants, is full of interest, while one less pretentious, too, may be made attractive. Possibly in no other part of the garden can such a wide selection of choice plants be brought together, unless it is under glass, and in such a case they lack the freedom and natural appearance so peculiar to tastefully disposed rock plants. When we mention rock garden, the term is, of course, applied to rockeries built of rock, not the little abominations one sometimes meets with constructed of clinkers, bricks and oyster shells.

To build a rockery, however, is a somewhat expensive affair, and if stone has to be brought from a distance much money may be expended on freight. If stone suitable for the purpose occurs near by, then matters are simplified. The site of an old quarry may frequently be turned into a very pretty rock garden by taking advantage of the old workings and modifying them to suit the new conditions. Perhaps the most difficult problem to face in such a case is the satisfactory clothing of a sheer face of stone which has been worked out smoothly. Perhaps the best means to adopt is to work out sufficient stone so that a series of shelves or terraces is formed. Should this be impracticable, then advantage must be taken of any crack or crevice to establish some plant which requires little soil. On the top, too, trailing plants may be placed in such a manner that their branches will hang over and partly clothe the upper part. Where the stone has been worked in an irregular manner, endless possibilities occur of creating colonies of showy plants. The lower part of the quarry, at all events, may be successfully dealt with, for there is usually a good deal of waste stone about. This can be made the base of the rockery with very little trouble. Advantage ought always to be taken of weather-worn stone, for it is much to be preferred to that which has been newly quarried.



EARLY SUMMER IN THE ALPINE GARDEN.

The question of the kind of stone to use is one that often solves itself. That common to the district is generally employed. Granite, limestone or yellow or red sandstone are all suitable. The great thing to bear in mind when building the rockery, is that the requirements of the plants must be studied first, not the appearance of the rockwork, though that, of course, is not to be lost sight of. Sometimes the work is given into the hands of one who is more of an architect than a gardener. To such a man the requirements of plants do not appeal; he is more concerned in the production of a fine arrangement of stone. A rockery formed in these circumstances is well known to the writer. It is made partly in an old quarry where stone was plentiful. Between £700 and £800 was spent in the building, and when it was finished it represented an imposing arrangement of stone with practically no positions for plants. The gardener, whose advice was overruled in the first instance, had then to make what alterations he could for the plants' sakes; but the result has never been really satisfactory. Objectionable features are almost sure to arise if the proper placing of the stones is not considered. Attention must be paid to the way the stone lay in its original bed, for it looks absurd when, of two pieces from the same layer, one is placed to rest on another, one representing a horizontal section and the other a vertical one.

A hillside or other elevated ground is more suitable for a rock garden than level ground; a valley is, perhaps, more suitable than either. In the latter case advantage may be taken of the slopes on either side, whilst the centre can be made to accommodate water-loving plants, particularly if a natural brook runs through it, or if such a brook can be formed. In making the rock garden on a hillside, stone may be economised, for the ground can be excavated and the stone placed in position without any of the building up which is necessary on level ground. Should the hillside be naturally rocky, so much the better. Whilst forming positions for the stones, care must be taken to place good soil in places where it can be taken advantage of by the plants. For instance, a fissure between large stones should communicate with a bed of good soil below, for some rock plants, though of quite small stature, send their roots to a considerable depth. Soil-filled crevices should be left in both horizontal and vertical positions or too great a regularity will be noticeable when the plants are established. "Bays" of considerable size should occur here and there, with promontories in other places fitted with numerous "pockets" of varying size for the accommodation of plants. The idea throughout the work should be to provide suitable positions for the plants. The

arrangement of the plants will allow of ample rock being left uncovered, for during summer vegetation must not be so dense as to hide the rock, or much of the charm of the garden will be lost. Should the rockery rise to a considerable height, provision must be made for the close inspection of the plants. The best way to effect this is to have a series of informal paths and rude steps. These may easily be made to look like part of the rockery itself by taking care to use similar stone and by placing little plants between the stones. The path along the bottom of the rockery may be made of rough stone with plants between if it is not too frequently used. Should the rockery be in a valley, then the centre may be made up with rough stones for plants, and a path be formed round it. If water is present, stepping-stones may take the place of a path. On no account should a formal basin of water be arranged; if something of a natural character is not present or cannot be introduced, then the idea of water had better be abandoned. Still, a water main near by will be found advantageous in the event of a continued period of drought in summer.

It cannot be supposed, however, that owners of small gardens or those of limited means can entertain the idea of building a large rock garden.

Pretty little gardens may be formed on the outskirts of lawns by so arranging the stones that they appear to crop up naturally from the ground. The stones need only rise to a height of a few feet, but they should be so placed as to have a natural effect. Stones of irregular size must be selected and appear at irregular heights. In some cases one large stone may be mounted on another with sufficient mould between to give roothold to a plant or two, while in another case the top of a stone may be just clear of the ground. Such a rockery is easily and quickly made, and the expense is not great, even if the stone has to be brought from a distance. Excellent results are obtained by planting such a rockery as this with Heaths and kindred plants. Of ordinary rock plants, however, there are many that may be expected to thrive admirably, though of course there is not sufficient variety in position and aspect to provide the conditions necessary to the successful cultivation of plants which are exacting in their requirements. One frequent source of failure with rock plants is damp in winter. A plant that would die in an exposed position would probably remain uninjured if slightly protected by a piece of overhanging rock. Then it is difficult in a low rockery to provide the wall-like character of a cliff side, in the fissures of which many choice plants prove such a complete success, though failing to survive under other conditions. It is, however, possible to provide shelter from rain and damp by placing a large sheet of glass, supported by a wire framework, over any plant peculiarly susceptible to damp.

In quite small gardens charming effects are sometimes made by the formation of rock borders, 2 or 3 feet wide. Coarse-growing plants are out of the question; something neat and attractive is required.

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A CHARMING LITTLE GARDEN OF ROCK AND ALPINE FLOWERS.

The object is gained by forming a low rockery and planting such things as the neater growing Saxifrages, Sempervivums, Sedums, Pinks, Aubrietias and Cerastiums.

Generally the midland and northern counties are more suitable for general collections of Alpine and rock plants than the milder, moister and more equable climate of the extreme south and west. The reason of this is that in the warmer parts of the country the plants do not obtain a long enough period of rest. They are covered deeply with snow for several months in their natural habitat, which keeps them warm and snug through the winter. As soon as the snow disappears they wake to find the summer sun. In milder districts, on the other hand, the plants start into growth prematurely; then a period of cold winds may be experienced, or a sharp frost may occur and seriously damage young leaves and flowers. In the Alpine regions, again, it frequently happens that during the summer months bright, hot sunshine is experienced which is very desirable for the well-being of Alpine plants, particularly when the ground is thoroughly moist from the heavy snows of the late winter. These conditions are not reproduced in counties like Cornwall, for a snowstorm is rarely experienced, and snow never lies. Then summer is not as a rule characterised by very bright and hot sunshine, for the effect of the sun is tempered by moist climatic conditions.

If, however, the conditions necessary for Alpine plants are not so favourable in our warm south-west counties as they are elsewhere, another class of plants may be found to replace them, for glorious effects are produced in some gardens by the wide planting of natural and artificial rockwork with gorgeous flowered Mesembryanthemums, Cotyledons, Sempervivums, Agaves, Yuccas, Opuntias, Sedums, and other plants of a similar character, whilst the various *Cistus* from the borders of the Mediterranean, which are not hardy enough for general cultivation, find suitable conditions for their full development. Such plants may, however, only be planted in sunny positions. In places less exposed to sunshine, the numerous temperate Ferns, British and exotic, may be planted on artificial rockwork. An Australian Tree-Fern is available in *Dicksonia antarctica*; this, planted here as a group, and there as an isolated specimen, is very charming with its dark, massive stems rising from a carpet of greenery and crowned with large fronds. The British Maidenhair may be given a good position, whilst some of the commoner Selaginellas are quite useful. Mosses and Liverworts may be taken advantage of to cover stones, whilst Primroses, Anemones, and other woodland flowers may be introduced with good effect.

A SELECTION OF PLANTS FOR THE ROCK GARDEN

ACENA.—The members of this family are of New Zealand origin. All are dwarf in habit and form carpet-like masses in dry places. *Microphylla* is ornamental on account of the red spines which

accompany the inflorescences in summer. *Buchanani*, red, and *Nova-Zealandica*, crimson, are other pretty kinds.

ACANTHOLIMON GLUMACEUM, the Prickly Thrift of Asia Minor, has curious spiny leaves and rose-coloured flowers, the latter appearing in summer. It is of dwarf growth and suitable for a sunny position. Other kinds to grow are *Kotschyi*, with white flowers, and *venustum*, with pink blooms.

ACHILLEA a family represented in England by the well-known Milfoil or Yarrow (*Millefolium*), has various representatives of a showy character, which are suitable for the rockery. They thrive in sandy or loamy soil, in positions which are moderately exposed. *Clavenna*, a European kind, of dwarf habit, with silvery leaves and white flowers; *compacta*, white; *Aizoon*, very dwarf; *Huteri*, white; *tomentosa*, yellow and sericea, white, are all desirable sorts to grow. All bloom in summer.

ADONIS.—Charming flowers of spring. The various kinds are suitable for corners or crevices between stones where there is a fairly deep pocket of soil. *Amurensis*, from Manchuria, grows about six inches high and bears yellow flowers in February. *Pyrenaica* and *vernalis* are other useful sorts from 6 to 12 inches high, and bearing large yellow flowers.

ATHIONEMA.—A showy plant of the Wallflower family, the various kinds being of sub-shrubby growth, suitable for sunny positions. *Grandiflorum*, rose or pink; *coridifolium*, rose, sometimes called the Lebanon Candytuft; *pulchellum* and *saxatile*, the Lebanon Mustard, form a good selection.

ALCHEMILLA ALPINA (*Lady's Mantle*) is a dwarf plant, suitable for a position where little else would grow, but where a green patch is desired.

ALYSSUM.—Among the *Alyssums*, or Madworts, are numerous showy plants. Their growth is somewhat similar to *Arabis*, but some are much stronger. They blossom in spring, and are suitable for planting in large masses, where they can hang over the face of a rock. They have yellow or white flowers. The following, which grow 3 to 6 inches high, are all worth growing: *alpestre*; *saxatile* and its variety *citrinum*; *maritimum*, the Sweet Alyssum; and *serpyllifolium*.

ANDROSACE.—Dwarf plants with Primrose-like flowers. Among them are some of the most beautiful of all Alpine flowers, but, unfortunately, many of them are difficult to grow. In a state of nature they inhabit the higher Alpine regions, where snow lies for many months of the year. Under cultivation, they are liable to suffer from damp, so should be given positions where moisture cannot lie amongst the growths. In winter it is a good plan to place a sheet of glass so that it will throw the rain off the plants. Sandy peat forms the most suitable soil. None grow more than an inch or two above the ground. Good sorts are: *Brigantiaca*, white; *cylindrica*, white

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THE LEMON-COLOURED MADWORT (ALYSSUM SAXATILE CITRINUM) IN
THE ROCK GARDEN.



foliosa, light red ; *imbricata*, white ; *Laggeri*, rose ; *lanuginosa*, rose-pink, and its variety *Leichtlini*, pink and white ; *obtusifolia*, white and rose ; *sarmentosa*, white and rose.

ANEMONE.—Most of the Anemones or Windflowers are suitable for moist, shady places about the rockery. They are at home in loamy soil, and are very showy. The spring-flowering kinds, such as *blanda*, blue ; *apennina*, blue ; *Hepatica*, blue, white and red ; *nemorosa*, white ; and *ranunculoides*, yellow, do not exceed a few inches in height. *Sylvestris*, white, the Snowdrop Windflower, and *Pulsatilla*, purple, the Pasque Flower, grow 6 to 12 inches high. Both are exceedingly beautiful.

AQUILEGIA (*Columbine*).—A showy group of plants, many of which are more suitable for the border than the rock garden. Some, however, thrive best in the latter position. They require a deep, well-drained, loamy soil. *Chrysantha*, yellow ; *alpina*, blue ; *cærulea*, blue ; *canadensis*, scarlet or orange ; *glandulosa*, blue and white ; and *Skinneri*, yellow and red, may be planted.

ARABIS.—Easily grown, dwarf, wide-spreading plants. They thrive well in light soil, and are useful for positions where they can spread and droop over the face of a miniature cliff. *Albida*, white ; *aubretoides*, rose ; and *cærulea*, blue, ought all to be grown.

ARENARIA (*Sandwort*).—Dwarf Alpine plants, suitable for planting in poor soil to cover the surface of rocks. All have tiny white, star-shaped flowers. Good sorts are : *aretoides*, *balearica*, *fasciculata*, and *Saxifraga*.

ARNICA (*Thrift* or *Sea Pink*).—All form evergreen, tufted masses a few inches high, and are suitable for exposed positions in sandy or loamy soil. *Alpina*, rose ; *cæspitosa*, rose ; *latifolia*, red and white varieties ; *maritima*, pink ; and *setacea*, pink, are good kinds that are easily grown.

ASTER ALPINUS.—The Blue Mountain Daisy grows from 6 to 7 inches high, and bears large blue flowers. Plant in a moderately moist position in loamy soil.

AUBRIETIA includes several species and varieties, all of which are highly decorative. They closely resemble the common *Arabis* in habit, and are suitable for similar planting. Purple, blue and rose are the most familiar colours, and the flowering time is April and May. *Deltoidea* and its numerous varieties, such as *Campbelli*, *conspicua*, *Fire King*, *grandiflora*, *Hendersoni*, *Leichtlini*, *Leichtlini rosea*, etc., are excellent.

CAMPANULA (*Bellflower*).—Included among the Campanulas are important blue- and white-flowered plants, which vary considerably in growth. All the dwarfier growing sorts are suitable for the rockery. Of special merit are such kinds as : *alpina*, 5 to 8 inches, blue ; *Allioni*, blue ; *carpatica*, blue ; *G. F. Wilson*, blue ; *fragilis*, blue ; *garganica*, blue ; *alba*, white ; *Hendersoni*, pale blue ; *muralis*,

blue; *portenschlagiana*, pale blue; *pulla*, purple; *Raineri*, blue, and *waldsteiniana*, blue.

CENTRANTHUS RUBER (*Red Valerian*) grows 1½ to 2 feet high, and thrives in crevices where little soil exists, as well as in good ground. It is suitable for a position which is somewhat difficult of access, for it is capable of looking after itself, and is showy from a distance. White varieties may be obtained.

CERASTIUM.—Low-growing, carpet-like plants, some of which have conspicuous silvery foliage. They thrive in light soil in stony ground, and soon cover large patches. The flowers of the following are white: *alpinum*, *Biebersteini*, and *tomentosum*.

CHEIRANTHUS (*Wallflower*).—Several are useful in the rock garden. The common Wallflower is of value for rocky ground, which is difficult of access, such as is sometimes found about natural rocks. In such positions it distributes its seeds and quickly becomes naturalised. *Allioni*, yellow; *Marshalli*, yellow and purple; and *Menziesi*, yellow, may all be grown.

CHIONODOXA (*Glory of the Snow*).—*Cretica*, *Lucilæ*, and its varieties *gigantea* and *sardensis*, are all dwarf, bulbous plants which bear pretty blue flowers in spring.

CHRYSANTHEMUM.—*Alpinum*, *caucasicum*, and *montanum* may be grown in comparatively poor soil. To be seen at their best, they should be grown in masses at least 12 to 18 inches across.

CORYDALIS (*Wall Rue*).—A few of these are useful for the drier parts of the rockery. The yellow, summer-flowering *lutea*, which grows about 6 inches high, is the one most often seen, but the newer *thalictrifolium* is well worth attention; *tomentella* is also worth growing.

CYCLAMEN.—Small colonies of hardy *Cyclamen*, planted in moist, but not wet, somewhat shady positions in loamy soil, form an attractive feature, both by reason of their prettily marked leaves and showy flowers. They are quite dwarf, rarely exceeding 4 inches in height. *Coum*, *europæum*, *cypricum*, *græcum*, *neapolitanum* and *repandum* are all worth growing. The flowers are red or reddish purple, but in some instances there are white varieties.

CYPRIPEDIUM SPECTABILE (*Moccasin Flower*).—One of the choicest and most beautiful plants we possess for moist, peaty ground about the lower parts of the rock garden. Growing from 1½ to 2 feet high, it produces large, white, rosy crimson pouches during early summer. Several others, such as *Calceolus*, *guttatum*, *humile*, and *montanum*, may also be planted.

DAPHNE.—Shrubby plants, several of which are of value for rockery planting. As a rule, they thrive best in moist, rather light loamy soil, but a few kinds like peat. *Cneorum*, the Garland-flower of the Alps, is an evergreen dwarf-growing plant which produces terminal heads of rose-coloured, fragrant flowers in May. It thrives best in

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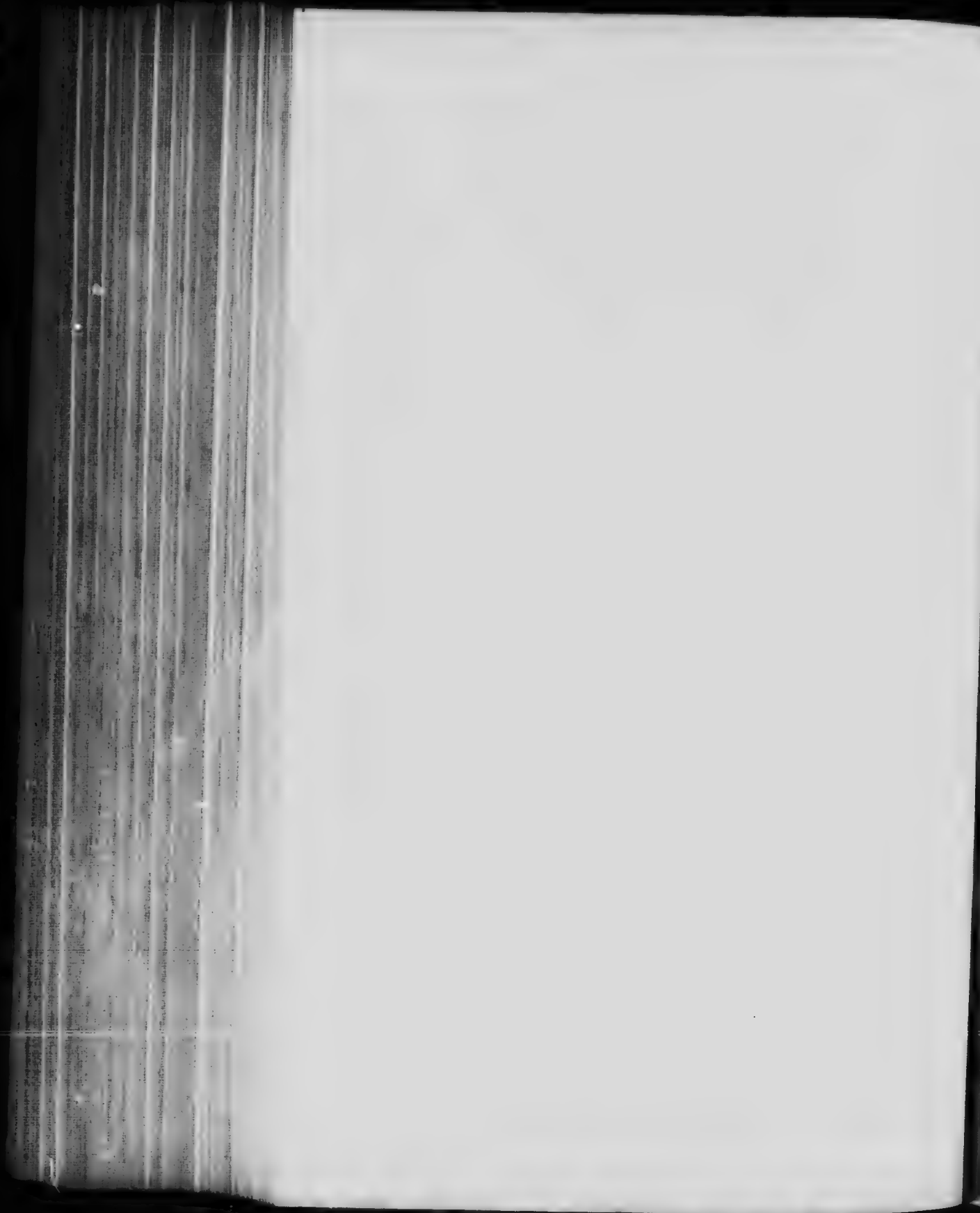
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ONE OF THE MOST DISTINCT OF THE ROCKFOILS (*SAXIFRAGA COCHLEARIS*).



loamy soil. *Blagayana* is another suitable shrub for the rockery. Growing about 4 inches high, it spreads by means of underground stems. The best results have been obtained by weighting the branches down with stones. The flowers are pale yellow and very fragrant; alpina ought to be grown also.

DIANTHEUS (Pink).—The Alpine Pinks thrive most satisfactorily in good loamy soil, in sunny positions, amongst pieces of rock, whilst some do very well in the crevices of a perpendicular face of rock. They flower in summer, and the most suitable kinds for the rockery rarely grow more than from 3 to 6 inches high. *Alpinus*, deep rose, very dwarf; *caesi*us, the Cheddar Pink, rose; *callianus*, rose; *detoides*, pink or white; *neglectus*, red; *petraeus*, rose; *superbus*, white; and *sylvestris*, pink, are all worthy of attention.

DODECATHÉON (American Cowslip).—Thrives in deep, rich and moist soil, not exposed to the full rays of the sun. These plants require a fair amount of space, for the flower spikes rise to a height, in some cases, of 1½ to 2 feet. The flowers are of various shades of rose, red and reddish purple. Good sorts to grow are *ellipticum*, *Hendersoni*, *Jeffreyi*, and *Meadia*.

DRABA.—Neat Alpine plants that grow but an inch or two high, but form dense carpets of green, rosette-like growths. The flowers are usually yellow or white, and are borne in spring. Little soil is required, and they will spread over a bare face of rock after they are once established. *Acaulis*, *aizoides*, *Aizoon*, *alpina*, *cuspidata*, *diversifolia* and *rupestris* are a few of the better known kinds.

ERIGERON ALPINUS is a showy, Aster-like plant of dwarf growth, which produces large purple flowers during late summer. It likes loamy soil and a well-drained position. *Grandiflorus* ought also to be planted.

ERYTHRONIUM (Dog's Tooth Violet).—Showy bulbous plants with prettily marbled leaves and bright-coloured flowers. They thrive in sandy soil which contains peat, and they like a fairly moist situation. *Americanum*, yellow, grows to a height of 8 or 9 inches; *dens-canis*, rosy purple, 3 to 6 inches; *grandiflorum*, white, with reddish marks; and *giganteum*, with very large flowers, ought to be grown.

GALAX APHYLLA (Wand Plant, or Carpenter's Leaf).—A charming little rock plant. In moist, peaty soil it thrives well and may be from 6 to 9 inches in height. Its leaves are evergreen, rounded and prettily toothed; at some periods they assume a rich bronze tint. The flowers are white and pretty.

GAULTHERIA PROCUMBENS (Partridge Berry).—A charming dwarf, shrubby plant, which rarely grows more than 3 inches high. It is conspicuous in autumn and winter by reason of its bright red berries, which in its native country are eaten by partridges, from which the name Partridge Berry has been given to the plant. Peaty soil and an open situation should be provided. *Trichophylla* may also be grown.

GENTIANA (*Gentian*).—The dwarf kinds of Gentian are all worth growing in the rockery, for where they thrive there are few more lovely objects, the intense blue of the tubular flowers of some sorts being distinct from anything else flowering at the same period. They thrive best in good loamy soil in a moist situation, but the soil must not be at all sour. *Acaulis* is a dwarf plant with flowers 2 to 3 inches long, of an intense shade of blue. There is also a white variety. *Bavarica*, another dwarf kind, is found on boggy ground in the European Alps. It has blue flowers. *Verna*, again a blue-flowered Alpine plant, should also be grown.

GERANIUM.—Several hardy Geraniums may be included in the rock garden. They delight in deep, rich, loamy soil, and are suitable for positions where strong growing plants are desired. *Endressii*, *ibericum* and *sanguineum* are vigorous-growing sorts, whilst *argenteum* and *cinereum* are less strong.

HELIANTHEMUM (*Sun Rose*).—These plants make a delightful display with their white, yellow, pink, and red flowers during early summer. They are low-growing shrubs, and thrive in poor soil in full sun. Few plants are better adapted for growing over rock, or for planting so that their branches will hang down the face of a cliff. *Vulgare* is the common kind, but there are many varieties, such as *venustum*, *Magenta Queen*, *Yellow Standard*, *Fireball*, *cupreum*, *rhodanthum*, etc.

HYPERICUM (*St. John's Wort*).—Several of these may be included, notably such dwarf kinds as *Buckleii*, *empetrifolium*, *repens* and *Richeri*. All have yellow flowers and thrive in a sunny position in light loam.

IBERIS (*Evergreen Candytuft*).—Some are of shrubby or sub-shrubby habit, and excellent for planting, so that their branches will hang down the face of a wall of stone. The evergreen leaves and white flowers are both valuable assets. *Correaefolia*, *gibraltarica* and *sempervirens* and varieties ought all to be grown.

IONOPSIDIUM ACAULE (*Violet Cress*).—A tiny plant scarcely 2 inches high, suitable for a prominent position in stony ground. Its flowers are violet, and they appear in summer. It is an annual.

IRIS.—A number of the dwarf Irises may well be introduced into the rock garden. They like well-drained loamy soil. *Alata*, *caucasica*, *Danfordiae*, *Histrio*, *pumila*, *reticulata*, and *unguicularis* are all suitable. The bulbous kinds should be given a warm position.

LINARIA ALPINA (*Toadflax*).—A dwarf plant with violet-coloured flowers. It is of handsome presence and suitable for a mass amongst small pieces of stone. *Cymbalaria*, the common Ivy-leaved Toadflax, should also be planted. A position where its shoots can grow over the face of a large stone will suit it exactly.

LITHOSPERMUM PROSTRATUM.—A dwarf, shrubby plant, makes a brilliant patch. It must be planted in well-drained, sandy soil in a sunny position. Its flowers are blue and very attractive.



THE ROCK GARDEN AT BLETCHLEY PARK, BUCKS.



LYNIMACHIA NUMMULARIA (*Creeping Jenny*).—May be planted in a moist position, where its creeping stems will soon cover a wide area. Crispidens and Henryi thrive better under somewhat drier conditions.

MECONOPSIS (*Indian Poppy*).—Closely related to the Poppies, the various Meconopsis are very showy. They thrive in a moist but well-drained situation in deep soil which contains peat. Some, like cambrica and simplicifolia, are of dwarf habit, but others, like aculeata, nepalensis, and integrifolia, grow from 2 to 3 feet high.

MYOSOTIS (*Forget-me-not*).—The blue or white flowers of some of the Forget-me-nots are very charming, and as they usually grow with little trouble, in sandy soil, they are extremely useful. Alpestris, asorica, dissitiflora, and repens may be planted.

NARCISSUS (*Daffodil*).—A few of the dwarf-growing kinds may well be planted in small colonies here and there amongst the stones. Loamy soil in well-drained positions suits them excellently. Bulbocodium, biflorus, cyclaminens, and minor and its varieties minimus and nanus are good kinds to plant.

OMPHALODES LUCILIAE is a pretty rock plant with blue flowers. It must have light, well-drained soil, and be planted in a position where its shoots will hang over a shelf of rock.

PHLOX.—Several dwarf-growing Phlox are excellent for covering patches of ground several feet across. They are showy, and thrive in light, loamy soil. Divaricata, lilac or purple, growing a foot high; amoena, a dwarf plant with reddish flowers; reptans, growing but a few inches high, and producing rich red flowers; and subulata, with rosy-purple or reddish flowers, are all suitable sorts to cultivate.

PLATYCODON GRANDIFLORUM, sometimes called Campanula grandiflora, is a very showy Bellflower from China and Japan. Growing 9 inches to a foot high, it bears large, bell-shaped, blue flowers. A light position in well drained, loamy soil suits it. There is a white variety. In wet situations it is rarely a success.

PRIMULA.—Many of the Primulas are at home in the rock garden. Some prefer fairly well drained positions in loamy soil amongst rocks, whilst others are more at home in boggy, peaty ground. For the latter position rosea is one of the most charming plants imaginable, whilst such strong-growing kinds as japonica and pulverulenta also like a moist situation. In other positions, such sorts as amoena, apennina, Auricula, biflora, capitata, clusiana, cortusoides, denticulata, farinosa and marginata are suitable.

SAXIFRAGA (*Rockfoil*).—All these are of exceptional merit for the rock garden. Several distinct groups are formed by the various species, for we have the strong-growing, large-leaved kinds as represented by ligulata and cordifolia; the mossy set with muscoides and Aizoon, as examples; the silvery-leaved ones, such as longifolia, and so on. Any of the species advertised by nurserymen may be obtained. Generally speaking, sunny positions are desirable, although many of the Mossy Saxifrages will thrive in semi-shade.

SEDUM (*Stoncrop*).—The numerous kinds of *Sedum* are suitable for dry and sunny positions, for they will spread over a bare rock and keep fresh throughout a lengthy period of drought. *Acre*, *Aizoon*, *album*, *Anacampteros*, *reflexum* and *roseum* are representatives of the family.

SEMPERVIVUM (*Houseleek*).—This is represented by a large number of low-growing plants, characterised by fleshy leaves forming dense rosettes. All are suitable for dry, sunny positions, where there is little soil. All are suitable for the rockery.

THYMUS CHAMÆDRYS (*Thyme*) and its varieties, and *Serpyllum* and its varieties, form showy, carpet-like masses in positions where there is little soil. Their flowers are showy, whilst the fragrance of the leaves is always pleasant.

VERONICA.—Both shrubby and herbaceous kinds may be obtained. The former grow well in light, sandy soil amongst rocks. They must be given sunny positions where the growths will become well ripened. The herbaceous sorts require better and moister soil. A few good shrubby kinds are *buxifolia*, *cupressoides*, and *diosmæfolia*. *Teucrium* and its varieties ought to be planted as representative of the herbaceous kinds.

VIOLA.—Violets and Pansies are such well-known and favourite plants that they need little recommendation. Many of the species or wild types are suitable for the rockery, and all are of low stature. Amongst others, *alpina*, *biflora*, *canadensis*, *cornuta*, *cucullata*, *gracilis*, *odorata*, *pedata* and *pubescens* should be grown.



ROCKFOIL OR SAXIFRAGE GROWING ON A STONE-STUDDED BANK.

CHAPTER XIX

LILIES

LILIES are favourite flowers both for outdoor planting and for growing in the greenhouse. Amateurs often experience a difficulty with Lilies owing to the fact that they will not, or do not, recognise that there are differences between them, and that all Lilies cannot be grown under the same conditions; some are hardy, some are not; some like one kind of soil, some another; some need to be planted much deeper than others; some need special positions to ensure their success; while others may be grown in any fair position in the garden. So far as regards depth of planting, we may divide Lilies into two classes—those that form roots from the base of the bulb only and those that form roots on the stem, in addition to the roots from the bulb. It is obvious that the latter will need planting more deeply than the former. The amateur can scarcely afford to ignore this direction, even though he grow only a few Lilies, since favourite sorts are found in each section. Lilies that root from the bulb only are put about 3 inches beneath the soil. Chief of those that root in this way are: the popular Madonna Lily (*candidum*); the Martagon Lily and its beautiful white variety; pomponium, a very showy and very attractive Lily with red flowers; the Turk's Cap Lily (*chalcedonicum*), which has scarlet flowers; *elegans*; the buff-coloured Lily (*testaceum*); Washington's Lily (*washingtonianum*), with pale pink blossoms; and *szovitzianum*, one of the most handsome of all, with brilliant red and yellow flowers. Chief among Lilies that form roots from that part of the stem immediately above the bulb, as well as from its base, are the following, and they should be planted 5 or 6 inches deep. The Tiger Lily (*tigrinum*); the old Orange Lily (*croceum*), perhaps the most commonly grown of all; *speciosum* and its several varieties, with blossoms, marked and spotted with rose and red, that are now fairly familiar during September and October; the Pyrenean Lily (*pyrenaicum*), with yellow flowers of somewhat unpleasant scent; Brown's

Lily (Browni), Hansoni, bulbifer, dauricum and monadelphum.

With respect to soil, Lilies may be conveniently divided into three classes: those that flourish in ordinary well-dug garden soil, providing it is not too heavy and clayey; those that need a well-drained and fairly light soil, such as is obtained by deep digging and mixing in plenty of sand and leaf mould; those that like a moist, peaty soil. The amateur will be well advised, unless he has special facilities for preparing for the third class of Lilies, to rely on the two first-named sections. It may be taken that no Lilies, with the possible exception of the old Orange Lily, will thrive, or at any rate increase, in soil that is heavy, and therefore wet and cold, throughout the winter. It is advisable, even in planting the commoner sorts, to dig in plenty of sand, road scrapings, or leaf soil with the object of keeping the ground free from stagnant moisture. I have grown many Lilies in an ordinary garden border by digging it about 18 inches deep, and improving it by the admixture of these materials. Amongst Lilies that grow with a minimum of attention in the way of soil preparation, are the following: candidum, pyrenaicum, dauricum, speciosum, longiflorum, umbellatum, Hansoni, tigrinum, szovitzianum, Browni, elegans, pomponium, chalcidonicum, and Martagon. Lilies that really need well-prepared and well-drained soil, although requiring no other special treatment, are: the Giant Lily (giganteum), auratum, Humboldti, testaceum, washingtonianum, japonicum, concolor, sulphureum, and rubellum. Those that need soil consisting chiefly of peat, that are, in fact, swamp Lilies, are canadense, pardalinum, superbum, Parryi, and Grayi.

In addition to the observance of the advice given above, success with Lilies depends largely upon early autumn planting, and in providing some slight protection to the young growths in spring. As is pretty generally known, an ideal place for Lilies is in a bed of such shrubs as Rhododendrons and Azaleas, for there the Lily shoots are well protected when young and tender. By the time they get above the shrubs warm weather has arrived, and they have nothing to fear. As a general rule, Lilies thrive best in a spot where they are shaded during the hottest part of the day. More satisfactory information can perhaps be given in considering each of the chief sorts.

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AMONG THE SHRUBBERIES AT BATSFORD—STEPPING-STONES IN THE
WILD GARDEN.

AURATUM (*The Golden-rayed Lily of Japan*).—The grandiloquent name given to this handsome Lily is not wholly undeserved as those who have seen it at its best will certainly admit; it cannot, however, be described as a good Lily for outdoor planting. It usually makes a fine display the first season, but is unreliable afterwards. It needs a soil with which peat has been freely intermixed, and will certainly prove a failure if planted in ill-prepared border soil. Protection in early spring is most welcome to the young shoots. At Kew, where a collection of Lilies is grown, it thrives among shrubs that are planted in peaty soil. This Lily grows from 4 to 6 feet high.

CANDIDUM.—This is the favourite Madonna or White Lily of cottage gardens; it blooms in June, and thrives best when rarely disturbed. When planting becomes necessary, this should be carried out in August, for by the middle of that month the stems will have died down. Early planting is most essential in the case of this Lily, for it has the characteristic of forming a tuft of autumn leaves, which persist throughout the winter, and these are only properly formed when the bulbs are put in early. This beautiful Lily is very susceptible to a disease which greatly disfigures its leaves, and eventually kills the plant. As a preventive measure, it is advised that before planting, the bulbs should be immersed in a bag of sulphur, so that this may be well mixed in among the "scales" of the bulbs. In planting this and, in fact, all Lilies, I find it best to place plenty of sand underneath and around each bulb; this encourages free rooting and keeps the bulbs from rotting during the winter.

CHALCEDONICUM (*The Scarlet Martagon*).—This is not really very commonly grown by amateurs, although the brilliant scarlet flowers should secure it a place in every representative garden. It grows from 2 to 3 feet high, and, like other Lilies, enjoys shade in the hottest part of the day; in fact, I have seen it thriving admirably in an open wood. Its flowering time is July.

CROCEUM (*The Orange Lily*).—Surely this is known to everyone who has a garden. The orange-red flowers are very showy, and in their season, which is early July, they are scarcely surpassed for brilliancy. There is no Lily more easily grown; it seems as happy in full sunshine as in semi-shade, although the blooms do not then last so long in full beauty. Its height is about 3 feet.

ELEGANS.—This always seems to me something of a prodigy amongst Lilies, its average height is about a foot, yet it bears large blooms, whose size seems out of all proportion to the height of the plant. It is best suited for planting near the edge of a border, where it is happy enough, providing the soil has been well dug and made light if necessary. There are some very showy varieties of this Lily, of which the finest of all is Prince of Orange. Others are Orange Queen, Wilsoni, and atrosanguineum; their blooms are of varied shades of orange-red.

GIGANTEUM.—This is easily the king of Lilies, a noble plant, growing

6 to 10 feet high, with large, lustrous green leaves and giant white funnel-shaped blooms. It is seen at its best only in half-shade and when the bulbs are planted in deep moist soil, consisting of chopped turf, leaf-soil, and decayed vegetable refuse. It is disappointing in that blooms are not always to be expected the year after planting, and after the plant has bloomed further disappointment is in store, for the offsets that form after the parent plant dies will not bloom for three, four, or perhaps five years.

HANSONI.—An attractive and easily grown Lily, with yellow flowers. I have grown it successfully in an ordinary border with no special treatment; it flowers in late June, and reaches a height of 5 feet or rather more.

HENRYI.—This is a comparatively new Lily, and was introduced by Dr. Henry from Western China. It is a magnificent plant, growing 6 feet high or more, and thrives well in the garden border. It has large orange coloured flowers that open in July. It is a fine Lily for the cold greenhouse.

HUMBOLDTI.—Here is a Lily that is not commonly grown, and there is good reason for its comparative rarity, since it is not one of the easiest to establish. The soil should be made agreeable to it by the addition of sand and leaf-soil in quantity. It is well worth attempting, for the blooms, on stems 4 to 5 feet high, are very showy, yellow with purple spots.

LONGIFLORUM.—This is the favourite Lily that is so largely grown in greenhouses for the supply of cut blooms in spring and early summer. It cannot be regarded as a good outdoor Lily, although for one season it does well enough. The large white trumpet-shaped flowers are produced on stems of an average height of 2 to 3 feet. There are several varieties, that known as *Harrisi* being chiefly grown.

MARTAGON.—The Martagon Lily is an old garden flower; its somewhat unattractive colouring no doubt accounts for the slow progress it has made in popular favour. The blooms are of a dull purplish shade. Some compensation, however, is afforded by its easy cultivation. It grows well in quite ordinary border soil, reaching a height of about 3 feet. Its white variety is particularly beautiful, and though more expensive than the type, is well worth growing. The variety called *dalmaticum* is an improvement on the ordinary kind.

MONADELPHUM.—This is a yellow-flowered Lily, that blooms in June. It has so far not become widely known, possibly because it is not one of the easiest to grow to perfection. It needs well-prepared soil, and is not to be treated as an ordinary border plant; leaf-soil and sand are what it likes.

PANDALINUM (*The Panther Lily*).—This needs moist, peaty soil and a sheltered spot to bring it to perfection. It is a fine, handsome Lily of graceful growth, as, indeed, most of the Lilies are. It grows some 5 feet high, and in July bears showy orange-red blooms.



THE KING OF LILIES (*LILIAM GIGANTEUM*) IN A GARDEN IN
SOUTH DEVON.



GREENHOUSE LILIES

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ROSELLUM.—This is a charming little pink Lily. It grows some 18 inches high, and comes into bloom early in May. It is only suited by careful soil preparation, sand and peat having a special attraction for it.

SPECIOSUM.—This, too, is a favourite flower; it begins to bloom in September and continues throughout the greater part of October. It is also an easily grown Lily. There are some very beautiful varieties; the commonest, *roseum*, has white flowers with pink spots. *Melpomene*, which is the most handsome of all, is marked and spotted with crimson; *Kraetzerei*, with pure white flowers, is very beautiful, but scarcely so satisfactory for a border plant as the coloured sorts. The average height is 3 feet, although *Kraetzerei* does not grow quite so tall.

TESTACEUM.—A beautiful tall-growing Lily, about 5 feet high with attractive nankeen yellow flowers. It is commonly supposed to be the result of a cross between the white or Madonna Lily and the Scarlet Martagon. It is not difficult to grow in well-drained soil.

TIGRINUM.—This is the favourite Tiger Lily, strongly to be recommended on account of its hardiness, healthiness and easy cultivation. It blooms in August and September, and on this account it is especially valuable for putting in beds of summer shrubs, since it continues the flower display until well on in the autumn. The plants grow some 3 to 4 feet high, and bear handsome orange-red, black-spotted flowers. The variety *splendens* is the finest of all, and this is the one to grow.

UMBELLATUM.—Here is another dwarf Lily, 2½ feet being its average height. In common with *Lilium elegans* and *longiflorum*, it lacks the grace of most other Lilies. What it lacks in grace, however, is easily made up in the rich colouring of its flowers, the blooms of several varieties being of rich orange and orange-red shades. *Aurantiacum*, *Cloth of Gold*, and *Sappho* are some of the finest varieties.

LILIES FOR THE GREENHOUSE

The reason for the popularity of Lilies as greenhouse flowers is not far to seek, for the flowers, in addition to being large and ornamental, possess the charm of fragrance. Lilies are usually seen at their best when arranged with an undergrowth of ferns or other green-leaved plants, for then the pots and the lower parts of the stems are hidden, and the elegant flowers and foliage on the upper parts of the stems are fully appreciated. When arranged without undergrowth the effect of the flowers is detracted from, especially in some kinds, for the base of the stem is bare of leaves. In a large greenhouse Lilies may be planted out, or the pots may be plunged in a border. The planting-out system has much to commend it in the case of some of the more tender sorts, for growth is more natural and the bulbs mature better. On the other hand, as soon as the flowers have faded and been removed, the stems look ugly amongst the surrounding

vegetation, until it is possible to cut them down, a process which is quite out of the question until the decay of the leaves, and that may not take place for two or three months.

Several kinds, however, give quite satisfactory results and continue to increase when grown in pots. Others may only be grown in pots for one year, and are usually thrown away after the fading of the flowers. To secure good results from Lilies in pots, it is necessary to ensure thorough drainage and to give good soil. Turfy soil and peat, both of a fibrous character, with a moderate proportion of leafmould and silver sand, form a suitable compost for most kinds. Strong-growing kinds may be assisted by well-rotted manure, but it is usually best to apply that in the form of a top dressing. Many Lilies form roots at the base of the young stem as well as from the base of the bulb; consequently it is necessary to plant deeply, so that further soil may be added later. Though correct in theory, this does not always work well in practice, for in the case of imported bulbs buried 4 to 6 inches beneath the soil, it sometimes happens that they decay, and if the young shoot is not destroyed, it grows very weakly. The way to overcome the difficulty is to place a little good soil on the crocks in the bottom of the pot. Then silver sand is placed for the base of the bulb to rest on, and a little soil is worked round the bulb to reach about three parts up the sides of the latter, but not to cover it. The soil is used moderately moist, and no water is given until roots are formed. Bulbs treated in this manner are stood in a cold frame. Should decay set in the decayed scales can be removed and the vicinity dusted with flowers of sulphur and powdered charcoal. As soon as shoots appear and the tiny rootlets commence to grow, the pots may be gradually filled with good soil—not all at once but on two occasions. In the case of strong-growing sorts, some well-decayed cow manure may be mixed with the soil, for the last top dressing. As soon as growth is really active a fairly large amount of water is required throughout the growing season, and on no account must the plants be allowed to become really dry. When the pots are filled with roots, manure water made from cow manure and soot may be given once or twice a week. After the flowers are over the feeding should be continued for those sorts to be kept for another year, for the bulbs have not completed their growth until the leaves commence to turn yellow naturally. As soon as this happens, the plants may be stood out of doors in a sunny position, and the water supply gradually decreased until the leaves are dead. The pots may then be laid on their sides to keep the soil dry and to finish the ripening process. In the case of bulbs which are started in small pots and are then transferred to large ones, a similar process of potting should be adopted. Bulbs planted in a border may be planted deeply to begin with, or if the bulbs do not appear very sound they can be started in pots and be planted out as soon as the stem roots commence to grow.

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LILIES IN THE GREENHOUSE.

GREENHOUSE LILIES

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LONGIFLORUM and its variety, *Harrisi*, are perhaps grown more extensively than any other kinds in pots. They are variously known as Bermuda Lilies, Easter Lilies and Trumpet Lilies, and may be had in flower from mid-winter to mid-summer. The greatest call for them is at Easter. Their sturdy stems rising from $1\frac{1}{2}$ to $2\frac{1}{2}$ feet in height, clothed with dark green foliage and surmounted by large, white, trumpet-shaped flowers, which are of good substance and very fragrant, are well known. These kinds are always grown from imported bulbs, and they are rarely kept for a second year, though by so doing a few flowers may be obtained. A single bulb may be grown to perfection in a 5-inch and 6-inch pot, but they must be well fed. They are rather susceptible to attacks of aphid, and should be fumigated frequently, otherwise the aphid seriously injures the points of the shoots and the flower-buds.

AURATUM.—This is commonly called the "Golden-rayed Lily of Japan," and its large, handsome, cream-white flowers are spotted or barred with gold. It is suitable for growing in pots, but must be given more peat and sand than the Bermuda Lily. Well-grown plants may be anything from 4 feet to 6 or 7 feet in height, and may carry from eight flowers upwards to twenty or thirty.

SPECIOSUM.—This is a Japanese kind, and most suitable for the greenhouse. It grows 2 to 3 feet high, and is distinguished by lance-shaped leaves which gave rise to the synonymous name of *L. lancifolium*. The flowers are 4 to 5 inches across, but the ends of the segments turn back, which diminishes the apparent size.

HENRYI is a comparatively new Lily from Western China. It is of vigorous habit, and succeeds well in loam or in equal parts of peat and loam. It has large, solid, purple and yellow bulbs which produce strong shoots from 5 to 10 feet high. A single stem may bear any number of blossoms from twelve to fifty, whilst sixty-five flowers have been counted on a single stem of a bulb planted out. The flowers are orange-coloured, and about 4 inches across. It increases more rapidly than many Lilies and will last for many years.

NEPALENSE is a curious, tall-growing Lily from Nepal. Its flowers are on tall, slender stems and are remarkable on account of the base of each segment being purple and the apex yellow.

RUBELLUM.—A rare Lily from Japan, worth growing for the sake of its pink, tubular flowers. It is a dwarf sort growing about $1\frac{1}{2}$ feet high. A single stem may bear from one to six flowers. The secret of success with this is to grow the bulbs from home-saved seeds, rather than trust to imported bulbs.

SULPHUREUM.—This is a very handsome Lily from Burma. Its rather slender branches may reach a height of from 6 to 8 feet. During autumn, large, tubular, sulphur-coloured flowers are borne in numbers, varying from two to nine on each stem. Bulbils are produced in profusion in the leaf axils; they may be used as a means of propagation. This Lily needs a fair amount of peat in the compost.

CHAPTER XX

WATER GARDENING

WHEN a natural lake exists on an estate, or a brook wends its way through the garden, then ideal conditions may be expected to exist for the formation of a water garden; when water has to be introduced a considerable initial expense must be anticipated; that is, if the owner wishes to have a garden worthy of the name. The charm of the water garden lies in its cool appearance and the freshness of its vegetation during the hot summer days; therefore everything about it should be so arranged that it will be at its best from late spring until early autumn. A natural lake, fed by a stream, and having a natural outlet, forms the easiest kind of water garden to deal with, for it is usually easy so to modify the margins that they may be made suitable for such plants as grow in very shallow water or mud, whilst deeper water in the vicinity is available for Water-lilies and other plants needing fairly deep water. In introducing Water-lilies and other plants into lakes, the mistake is sometimes made of covering too great a space of water with foliage. This destroys much of the beauty of the lake, for the great charm of the water garden lies, not only in the plants, but in the glimpses of water surface; therefore Water-lilies and other plants should be placed chiefly about the margins.

Many people are not fortunate enough to possess natural lakes or streams capable of being easily turned into water gardens, and have to create them. The first thing is to find out what the possibilities are of a constant supply of fresh water throughout the year, whilst a means of disposing of surplus water is quite as essential. There can be nothing worse than a water garden with a bad water supply; if the water is not continually running, it quickly becomes foul, and is, in addition to being an eyesore, a source of danger to health in hot weather. It is better by far to dismiss the idea of a water garden altogether if it is found to be impossible to obtain the necessary supply of fresh water. This may

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SIBERIAN IRIS (*IRIS SIBIRICA*) BY THE LAKE SIDE AT KEW.

sometimes be obtained from a distance, by the use of a small dam working in some river or brook, and is perhaps the only practical means of obtaining water unless a water main runs through the neighbourhood; then the expense would probably be prohibitive in keeping a lake of any considerable size supplied. In some gardens the water garden is reduced to the proportions of a large tank; then the question of a water supply is less serious, for a comparatively small quantity keeps it going, though the smaller the tank, the more often should it be emptied and refilled with fresh water. Whenever possible, ponds or tanks made for the reception of water plants should be so arranged that they can be emptied at will, for at least once a year it is a good plan to clean out the mud.

The arrangement of an artificial water garden needs some thought. Should the owner wish to have his plants immediately under his eye, it must be fairly narrow. At Aldenham House a water garden in the form of a canal exists. Along each side there is a grass path, and visitors may see every plant conveniently. It might be thought that the formal outline would have an unsightly effect, but this is not the case, for by a judicious arrangement of the plants about the margins the straight sides are not noticeable. A pond, 2 to 2½ feet deep, with boggy margins, is another suitable form of water garden, whilst a tank or tanks may be favoured in such gardens where the requirements of the plants, rather than landscape effect, are given consideration. Water 2½ feet deep is all that is needed if the garden is to be kept attractive; a man must get into the water to remove dead leaves, flowers, and other rubbish at least once a week. Moreover, a greater depth of water is not necessary, and only adds to the expense of making and upkeep. As a general rule 2 feet of water will be ample. After the water garden has been excavated to the necessary depth it must be made water-tight, either by puddling with clay or by building up with concrete and cement, or with concrete, brick walls and cement. The larger the pond the stronger must be the bottom and sides. If really stiff clay can be obtained it is as good as anything to use for a pond of large size, but for a tank or very small garden it is better to rely on concrete and cement. A layer of clay 9 inches thick is placed all over the bottom and the lower parts of the sides. On the sides, however, it may be gradually reduced in thickness until it is about 4 inches thick near the water surface. Before being used the clay must be thoroughly

broken up and puddled to make sure that there are no lumps left, and that it will work easily. A commencement is then made in the middle of the pond by placing in 6 inches of clay. This by the aid of water should be well trodden or pounded into place. Then more clay is added, and again pounded until a sufficiently thick layer is formed. The surface is smoothed over with the back of a wet shovel or spade, and as the work proceeds small mounds of loam are made for the various plants. During the progress of the puddling the clay must be kept wet, for if it is allowed to dry at all cracks will occur. When the work is finished the plants are inserted in the beds of soil and the water run in. When a concrete and cement tank is to be formed, it is usually advisable to call in a builder to do the work, for great strength is necessary, and inexperience will probably result in a bottom and sides which will not hold water, and may cause endless future trouble.

In a garden in the London suburbs, a pretty little water garden was seen a short time ago. A number of tubs had been sunk in a lawn and connected by a perforated pipe, with an overflow to a drain near by. Each of these tubs contained a showy Water-lily, or some other aquatic. The tubs were partially surrounded by a low, irregular border of stonework, over which a number of trailing plants grew. This idea might well be copied by people who, possessing small gardens, wish to grow a few aquatic plants. Needless to say, small tanks and tubs ought to be emptied frequently, in order that all dirty water may be got rid of.

When forming a tank for water plants, it ought to be made with the surface on a level with, or very little higher, than the surrounding ground, though the exact height is determined by the level of the ditch or drain into which the surplus water is to flow. The border of the tank should be shallow and a foot to 2 feet wide, so that it may be filled up with soil and used for bog plants. Rough stones here and there about the margins help to relieve the flatness. These may be a foot or more high and several placed together with soil between will form a suitable position for a plant which likes to have its roots in water but its leaves fairly dry. The use of tall and low growing plants is usually a good means of relieving any position where too great formality is noticeable.

A frequent source of annoyance in ponds and tanks is the appearance of a thick green scum on the surface during

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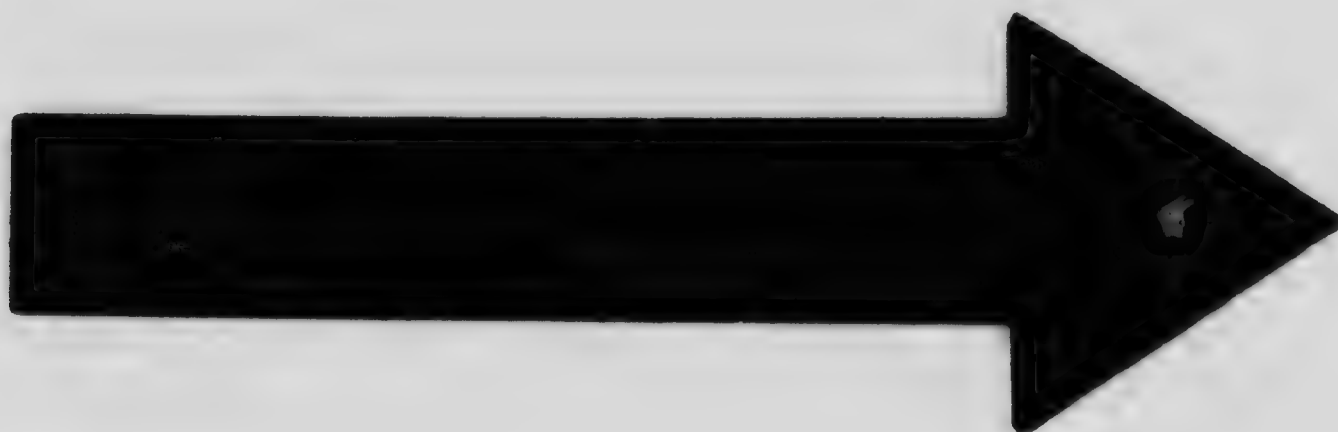
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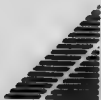
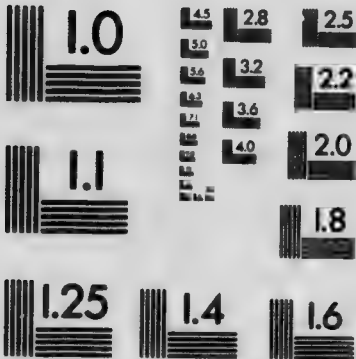


A DELIGHTFUL PROSPECT IN A GARDEN IN HERTS. ON THE RIGHT MAY BE SEEN A HEDGE OF
PENZANCE BRIERS. IRISES ARE SHOWN BY THE WATERSIDE.



MICROCOPY RESOLUTION TEST CHART

(ANSI and ISO TEST CHART No. 2)



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warm weather. It is almost impossible to eradicate it, but it may be kept down by adding copper sulphate to the water at the rate of $2\frac{1}{2}$ ounces to 10,000 gallons of water. The copper sulphate may either be tied up in a piece of canvas and trailed through the water until it is dissolved, or it may be dissolved in a little water and be syringed over the surface of the pool. It must be remembered that this is poisonous and must not be allowed to come into contact with broken skin on the hands or other parts of the body. Water-lilies are sometimes badly attacked by a black kind of aphid. When such an attack occurs the leaves should be syringed with a mixture made up by boiling Quassia chips, soft soap and nicotine together, at the rate of 4 lb. of the former to 2 lb. of soap and half a pint of nicotine, in 20 gallons of water. This is syringed over the plants, taking care to moisten the exposed surfaces thoroughly.

PLANTING.—As has been previously pointed out, a good method of preparing stations for water plants is to arrange mounds of good turfy soil while the pond or tank is empty. As a rule, the best method is to arrange strong pieces of turf to form a circle a foot high and a foot and a half across with a hollow centre. The centre may then be filled in with fine soil to work amongst the roots of the plants. A modification of this is to form a circle of bricks or stones, and fill the centre with soil. It sometimes happens that this style of planting is not practicable, as in the case of a large lake that cannot be emptied. The practice should in such instances be adopted of planting the Water-lilies or other things in shallow baskets of soil, then dropping them into the water from a boat or raft. The soil may be secured in the baskets by means of a little straw threaded across with string. If this is not done it may be displaced during the submerging process. There is no better time to plant than February or March, though the work may really be done any time during winter or early spring. If during winter a pond or tank has to be left empty for a few days, a little hay or bracken should be placed round the plants to protect them from frost.

SELECTION OF PLANTS.—For submerging in water the *Nymphæas*, or Water-lilies, are the most popular. A few years ago it was rarely that any kind of *Nymphæa* except the common white *Nymphæa alba* was met with in the outdoor garden; now, however, numerous varieties with red, yellow and white blossoms may be obtained, whilst in very favoured localities it is possible to cultivate the blue-flowered *stellata* out of doors in summer. A good selection of *Nymphæas* is as follows: *alba candidissima*, *Marliacea albida*, and Wm. Gladstone, white; *alba rubra*, *fulva*, *Marliacea ignea*, *robinsoniana*, and William Falconer, red; *Marliacea carnea*, pinkish; *Marliacea chromatella*, odorata

sulphurea, and tuberosa flavescens, yellow. An allied plant may be obtained in the so-called Yellow Water-lily, *Nuphar luteum*, which is frequently met with in ponds and streams in various parts of the country. Another showy yellow-flowered floating plant is *Limnanthemum peltatum*, the Fringed Buck Bean. Though very beautiful when in flower, this has the defect of spreading rapidly and consequently needs constant watching and checking.

Among taller-growing plants we find the two Reedmaces, *Typha latifolia* and *Typha angustifolia*, both excellent plants, whilst the Spire Reed, *Phragmitis communis*, and its variegated-leaved variety are also of service. The perennial *Zizania latifolia*, though less ornamental than the Indian Rice, *Zizania aquatica*, is worth growing for variety, whilst the latter is one of the most showy, tall-growing water plants we possess. A plant that might well be grown more widely in southern gardens is *Thalia dealbata*. It may be planted where the water is 9 or 12 inches deep; it forms a handsome clump 4 to 5 feet high. In the southern parts of Cornwall and Ireland very good results are obtained by planting the common Calla, or giving it its correct name, *Richardia africana*, in lakes and pools. Here and there it has assumed large proportions and covers extensive areas, the large white spathes being very attractive in spring. Arrow-head, or *Sagittaria*, soon covers a wide space. The most suitable one to plant where only one is required is *variabilis* var. *flore pleno*. Near the margins, where the water may be but a few inches deep, is an excellent position for the Japanese Iris, *Iris lævigata*, of which many beautiful varieties have been received from Japan, the flowers in some cases being 4 to 6 inches across. Other Irises of merit which may be grown in shallow water, or in mud, are *sibirica*, with blue flowers, and the common yellow Water Flag, *Iris Pseudacorus*. Then we may plant in the water such things as Water Violet (*Hottonia palustris*), Buck or Bog Bean (*Menyanthes trifoliata*), Flowering Rush (*Butomus umbellatus*), Giant Dock (*Ruscus hydrolapathum*), and the Sweet Flag (*Acorus calamus*).

By the margin of the lake, where the roots can enter the water, may be planted *Gunnera manicata*. Its large leaves are always imposing and add an air of tropical luxuriance to the scene. Many Orchids can be accommodated where the ground is boggy; the majority of the British kinds may be tried, whilst the beautiful Mocassin flower (*Cypripedium spectabile*) may be introduced with good effect. Such ornamental foliaged plants as the *Rodgersias* must not be left out, whilst *Ranunculus aconitifolius* and its double-flowered variety—a plant known under the common name of "Fair Maids of France"—thrives excellently near water. Several *Primulas* are at their best when growing in wet ground, *japonica*, *rosea*, *pulverulenta* and others being suitable. Some of the newer Giant Groundsels or *Senecios*, such as *Clivorum* and *veitchianus*, form handsome bog plants, whilst the Musk (*Mimulus luteus*) is happy in moist soil.

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THE GIANT-LEAVED GUNNERA MANICATA, MOST STRIKING OF ALL ORNAMENTAL-LEAVED PLANTS.
IT THRIVES BEST IN A MOIST SPOT, AND ITS ROOTS NEED PROTECTION IN WINTER.

CHAPTER XXI

WALL GARDENING

THE many kinds of plants that occur casually on old walls and buildings are often so beautifully placed and of so charming a character that gardeners have taken a leaf from Nature's notebook and endeavoured to obtain similar effects with native and exotic plants. So popular has this feature become that most up-to-date gardens include a wall garden amongst their other attractions, and such a feature is a source of considerable interest, for a very wide selection of plants may be grown in or about a wall, especially when the latter is built with the object of giving foothold and affording nourishment to plants. When ruins of a stone or brick building exist, particularly if the walls are of considerable thickness, excellent facilities are offered for the establishment of a wall garden, for in such places it often happens that a considerable amount of soil and other debris has collected in nooks and crevices and affords sufficient food material for the requirements of many plants. Those of a more exacting nature may usually be accommodated in places where the removal of a few stones has left a small open space or "pocket," where good soil can be introduced. As a rule, if a plant can once be induced to take root well in an old wall, it is able to look after itself. On ruins of historical interest it is not advisable to introduce plants that form strong roots, for these are liable to disturb and in time to dislodge the stones. The decay of the walls may thereby be hastened.

An excellent kind of wall for the cultivation of plants is one consisting of earth and stone, such as frequently does duty for a hedge along the roadside for instance, in Devon and Cornwall. Visitors to either of these counties cannot fail to be struck by the beauty of such walls, veiled as they are with ferns and flowering plants. A modification of such a wall is adopted in some gardens. This consists of a double wall with "ties" between here and there, the interspace being filled with soil and small pieces of stone mixed. Heavy stones are favoured so that they will keep in position without mortar. Here and there about the sides, spaces are left for the accommodation of plants, whilst the top is planted as well. It is not advisable to have a perfectly level top, it may be made to look more picturesque by introducing certain irregularities here and there. Occasional mounds of a foot or two high may be made, whilst here and there a large stone should rise above the general vegetation. Should the object be solely

to make a wall garden, a few spaces may be left quite low in the wall, and, near by, a heap of stones, as though a breach had occurred at some time and had gradually become covered with vegetation.

Needless to say, if a wall is to be built for the purpose, stone which has been exposed to the weather has advantages over that which is quite new. On such a wall as this an unlimited number of plants may be grown; for instance, the dwarf Saxifrages, such as *S. aizoides*, *Aizoon* and its numerous varieties, *apiculata*, *burseriana*, *cæspitosa*, *Cotyledon* and its variety *pyramidalis*, *granulata* and its double-flowered variety, *hypnoides*, *muscoides* and varieties, *oppositifolia* and varieties, *trifurcata* and *umbrosa*. Then the large-leaved Saxifrages, such as *S. ligulata* and *S. cordifolia*, are to be encouraged; here and there on the top of the wall, both foliage and flowers are very striking, whilst they look quite as well on a heap of debris at the foot of the wall. Ferns may be used profusely, especially in places where the climate is moderately moist. Many kinds can be tried, of which a few satisfactory ones are the Hart's-tongue (*Scolopendrium vulgare*), Parsley-fern (*Cryptogramme crispa*), Hard-fern (*Lomaria spicata*), Maidenhair (*Adiantum Capillus-Veneris*) in mild districts, *Asplenium Trichomanes*, and *Polypodium vulgare*. Several sorts of *Cotyledon* may be called into use; in fact, all the hardy ones are suitable. The large Houseleek or *Sempervivum* family offers a wide selection of plants which are peculiarly appropriate for the purpose, for planted on a wall, they secure that thorough drainage which is so essential to their success. The common Houseleek is a familiar example of the group, whilst the Cobweb Houseleek (*S. arachnoides*) is especially attractive by reason of the fine weblike substance which veils the leaves. Such plants as Perennial Candytuft, *Iberis sempervirens*, and the several *Aubrietias* adapt themselves very readily to wall culture, and are wonderfully attractive when their growths, which may hang down the face of the wall to a depth of 2 ft. or 3 ft., are covered with flowers. The same remarks apply to *Arabis* and *Alyssum*. *Vinca minor* (the Periwinkle) is also a good plant for the top of the wall, whilst Rock Roses and Sun Roses may be introduced in variety. Wall-flowers, Snapdragons and Honesty may be expected to thrive and reproduce themselves from self-sown seeds, whilst a suitable British plant of great beauty is found in *Centranthus ruber*. Rare plants, such as *Ramondia pyrenaica* find a congenial home on the face of a wall, whilst some of the rarer kinds of Pinks (*Dianthus*) thrive well and look charming in such a position. Mosses are to be encouraged, and so are the various kinds of Thyme. The latter thrive well on walls, and are attractive alike by reason of their fragrance and their showy flowers.

Numerous shrubby plants may be grown on the wall. The Golden Bell (*Forsythia suspensa*) is admirable for the purpose. It does not grow so luxuriantly as it would with a more liberal root-run, but it blossoms profusely. The common Flowering Currant (*Ribes sanguineum*)



A PICTURESQUE CORNER. EVERGREEN CANDYTUFT GROWING IN AN OLD
STONE WALL.

is also suitable, whilst species of Rose, Brooms, double-flowered Gorse, Lavender and Tamarix, give satisfactory results.

The kind of wall already described is not, however, the only one on which plants may be grown. Quite recently a wall of granite was seen which had been built to uphold a terrace. This of necessity had to be well built, but here and there cunningly devised pockets of soil had been introduced, and many a little plant made the surface gay with its brightly coloured flowers. Where old ruins are concerned it sometimes happens that good results may be obtained from sowing seeds here and there where a little soil exists, or there is a possibility of its being introduced, but not in sufficient quantity to allow of plants with a considerable root system being inserted. The seeds germinate and the seedlings at once begin to extend their roots into cracks and crevices, and so obtain foothold and sufficient food to sustain them until well established. It would be out of the question to put in a developed plant. Old weather-worn terrace walls and flights of steps exist in some gardens, and by the judicious planting of such places charming effects are obtained. In every possible position about the top and exposed side of the terrace wall showy flowering plants may be introduced, whilst both the stonework along the sides of flights of steps and the crevices between the stones may be planted. When it is possible to build a flight of steps so that it can be used for plants the necessary crevices and pockets of soil are easily made. Ferns are excellent subjects for such places, whilst Primroses, Wall-flowers and other simple flowers are better for the purpose than rare exotic plants. When native plants are used, they have the appearance of having sprung naturally from self-sown seed, whereas rare exotic plants would be out of place in positions where they would be exposed to damage by careless pedestrians. As a rule, steps planted in this manner ought not to be used very much, for if the plants are badly damaged by passers-by, they will look miserable. The ground in the vicinity of the steps may be made to harmonise by planting it with suitable herbaceous or shrubby plants.

A feature of wall gardening not yet touched upon is perhaps the most important of all, for almost every householder is made acquainted with it at one period or another. It is the covering of walls with climbers. Walls of kitchen gardens are generally utilised for the cultivation of choice varieties of fruit which require a little more protection from cold in spring and a little extra heat for ripening the fruit in autumn than is afforded in the open garden. Everyone is familiar with the rich colouring and sweetness of fruits ripened on trees growing against walls, for it is frequently far more pronounced than that of similar kinds of fruits in the open. Then the use of walls for the cultivation of shrubs which are not quite hardy enough to stand in the open calls for attention, and it is this class of shrub, as a rule, that is found growing against garden walls, rather than true climbers. Climbers certainly are planted to some extent, but the

majority of them are not well placed on walls, for they have not sufficient room to develop properly, and look more natural when allowed to grow in profusion over an old bush, low tree or fence. It sometimes happens that plants are wanted to hide an unsightly wall of some considerable height. For such a purpose, choice of subjects is limited, and it is better to rely on one or two of the old, well-tried plants rather than introduce novelties.

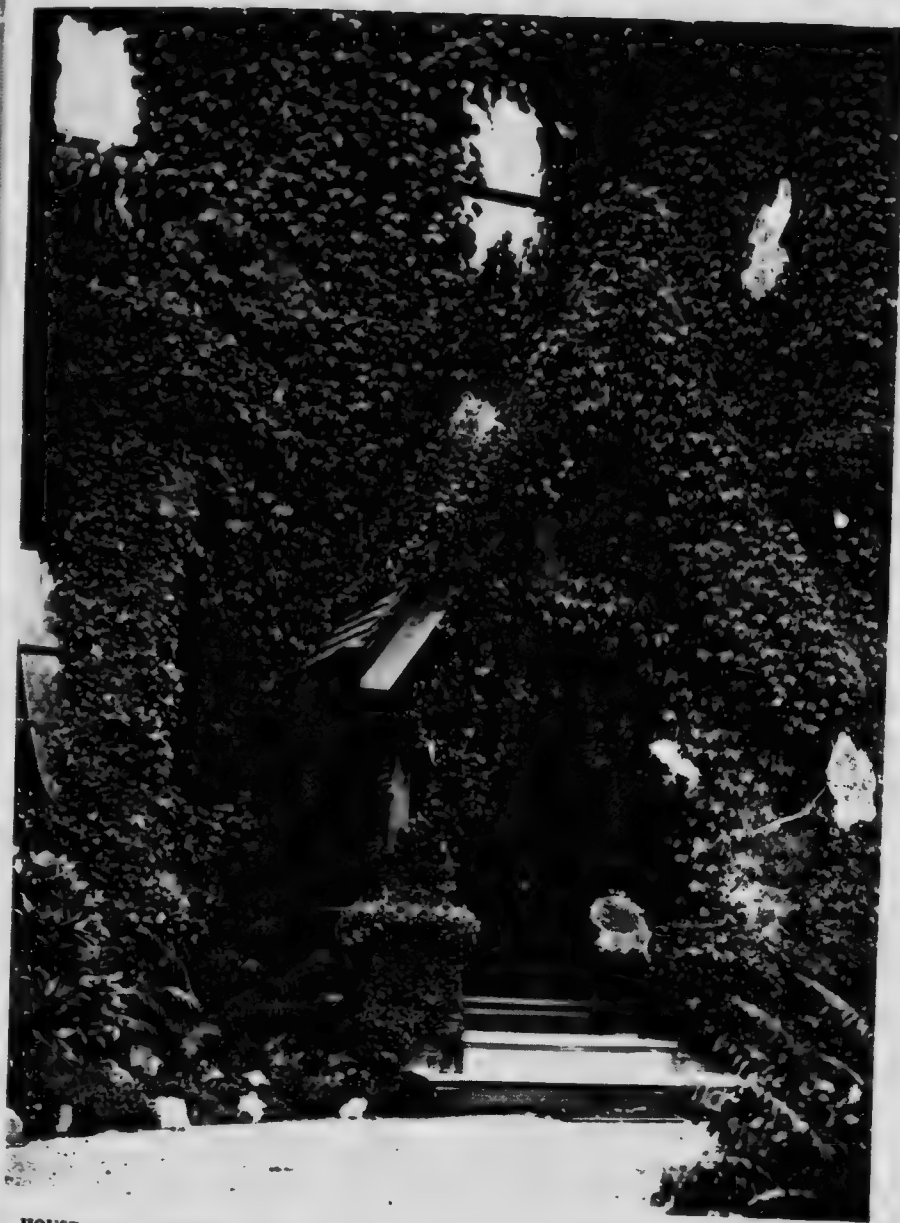
There can be no doubt that for general work, taking one position with another, the best wall evergreen of climbing habit is the green-leaved Ivy, either the large-leaved Irish variety or the smaller-leaved kind, and the best deciduous climbing plant is *Ampelopsis Veitchii* or *Vitis inconstans*, as it is sometimes called. Both are self-clinging, and there is no trouble to get them to grow in the required direction. They are very vigorous, however, and require clipping hard every spring. They ought also to be cut back well below the eaves of the house each spring, or they may grow up and force their shoots amongst the slates, so causing serious damage to the roof. Other popular climbing plants are Clematis in variety, particularly *C. montana* and its variety *rubens*, *C. lanuginosa* and its varieties, and *C. Jackmani* and its varieties. Honeysuckles are equally popular, especially *Lonicera japonica* and its varieties, *L. Periclymenum* and varieties, and *L. sempervirens*. *Jasminum nudiflorum* is showy by reason of its golden blossoms in winter, whilst the fragrant *J. officinale* is equally so in summer on account of its white blooms. Vines of various kinds may well be introduced, whilst *Tecoma radicans* is showy by reason of its brick-red trumpet-shaped flowers in autumn. *Hydrangea petiolaris* furnishes us with a useful self-clinging climber for a wall 12 ft. or 14 ft. high, whilst the various climbing roses all give good accounts of themselves. For low walls or places where they are not expected to cover a wide area rapidly, the many gold and silver leaved varieties of Ivy command attention, whilst the kinds that are remarkable for very large or very small leaves may also be requisitioned. *Wistaria sinensis* and *W. multijuga* are also two popular house climbers.

The number of shrubby plants suitable for training against walls is legion, and they vary from such things as *Datura sanguinea*, used in Cornwall, to *Viburnum tomentosum*, variety *plicatum*, suitable for northern gardens. Almost anything of a showy character which shows signs of tenderness may be tried. A few popular plants are *Magnolia grandiflora*, *Escallonia macrantha*, *Ceanothus rigidus*, *C. veitchianus*, *C. papillosus*, *C. divaricatus*, *Myrtus communis*, *Camellia japonica*, *Garrya elliptica*, *Abelia unicolor*, *Buddleia globosa*, *Forsythia suspensa*, *Cydonia japonica*, etc.

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HOUSE AND PORCH DRAPED WITH THE POPULAR SELF-CLINGING CREEPER
(CAMPELOPSIS VEITCHI).



CHAPTER XXII

COMMON GARDEN INSECT PESTS AND HOW TO DESTROY THEM

FROM the earliest recorded times, insects have been a source of anxiety to those who, for their pleasure or from force of circumstances, have accustomed themselves to look to the fruits of the earth as a fitting reward for their labours. We read that a plague of locusts visited Egypt in B.C. 1491, and even to the present day these insects have continued to do enormous damage to tropical vegetation, season after season. British horticulturists have no cause to fear a visitation of locusts, leaving in their trail a country devoid of every green leaf. Wholesale devastation of such a nature is unknown in Britain; nevertheless, if some ardent statistician were to collect and tabulate data showing the total insect damage in this country in the course of a year, the figures would attain alarming proportions. The very large amount of harm caused by certain insects seldom impresses the gardener, especially the amateur gardener, till his own crops are attacked; then he probably seeks for a remedy, the while there is considerable delay, during which the pests gain ground and prove daily more difficult to deal with. The following notes depict some of the commoner insect pests, with remedies for their eradication. When we remember that more than sixty insects are known to damage Apple trees alone, it is obvious that this article cannot be more than a very cursory glance at some of the quite common pests, though they have also been selected with an eye to their dissimilar means of attack, in order to give an insight into varied methods of prevention or cure. Thus, the Green Rose Chafer alone is mentioned, and not the better known Cockchafer, for in habits and in method of treatment these two insects are very similar; for the same reason the common Gooseberry Sawfly receives attention, whilst other Sawflies attacking these plants are not named.

Plants are damaged either by biting or by sucking insects. To understand this statement clearly—and it is a most important point, for insect pests are dealt with according to their mode of feeding—observe a hungry caterpillar on its favourite food plant. Notice that, starting from the edge of the leaf, it will quickly make great inroads into the blade of the leaf by biting off layer after layer. The caterpillar's jaws may be seen grinding up the food, and if several caterpillars are feeding at the same time, the action of the jaws may be plainly heard; everyone who has kept silkworms in his or her juvenile days must have heard the steady, persistent grind of the feeding worms. Next take a rose twig on which there are some green fly. Observe

a single fly from the side through a good magnifying glass, and you will see that the fly is provided with a beak; you will see, too, that this beak is dug deeply into the plant tissue, and by it the insect is anchored to the plant. Not only does the beak act as an anchor, but all the while the green fly is filling its body with juices sucked from the plant through the beak. The green fly is a sucking insect, and is no less harmful because the damage it causes is not, perhaps, so obvious as the damage done by a biting insect, such as a caterpillar; in fact, one of the worst pests known to horticulturists is a sucking insect, namely, the phylloxera—happily very rare in this country. It may here be stated as a general rule that biting insects can be destroyed by poisoning their food, and that sucking insects must be attacked by contact poisons—*i.e.*, the poisons must be sprayed or by some means brought into contact with the bodies of the insects themselves.

It is well known that insects pass through a series of changes during a complete life-cycle; a little consideration, too, will show that an insect may be perfectly harmless in one stage and exceedingly harmful in another. The Cabbage Butterfly—that common white butterfly well known to everybody—is perfectly harmless as a butterfly, but in the caterpillar stage it does a great deal of harm to cabbages and allied plants. Again, the Rose Chafer Beetle—to be mentioned later—is harmful both in the caterpillar stage and in the perfect insect or beetle stage. Because one insect is harmless at a certain period of its existence, that is no excuse for the gardener to relinquish his efforts to get on fighting terms with the enemy till the harmful period comes round again. There is work to do in the war with the insect world at all times of the year, and a gardener blessed with a pair of sharp eyes can often do more good in the winter than in the summer months; that is, if he knows what to look for. In winter, eggs and hibernating insects in various stages must be sought and when found can be destroyed wholesale. To fight the insect world with any chance of success, it is necessary to exert a considerable amount of intelligence. First of all, the habits of the insect should be studied. A knowledge of how your enemy lives will surely reveal a vulnerable spot, and, having found that spot, the knowledge must be utilised, and the advantage gained must be pressed home to the full. There is no use doing things by halves. Insects with similar habits can usually be destroyed in like manner.

INSECTS INJURIOUS TO FRUIT TREES AND BUSHES

LACKEY MOTH.—A careful examination of Apple and Pear trees at any period when they are devoid of leaves will probably reveal many little greyish brown bands—almost the colour of the bark—encircling the young wood of recent growth. These little rings are the egg bands of the Lackey Moth, an insect that, in the caterpillar stage, does a considerable amount of damage to Apple and Pear trees. If the bands are left on the tree, from each fertile egg a minute, nearly black, rather hairy caterpillar emerges about April. Each caterpillar

is possessed of a ravenous appetite, and imbued with a wonderful sense of protection. Very early in life the grubs spin a web over several leaves, and for some time they feed only on those leaves covered by the web. As they grow they enlarge their web to cover more and more leaves, till eventually the web may measure as much as a foot in length. Grubs with this web-spinning habit are often known as Tent Caterpillars; included in this category, along with the Lackey Moth grubs are those of the Brown Tail and of the Little Ermine Moth. As the caterpillars grow older they leave their tent, returning to it when the weather is dull or when rain is imminent. By this time the sombre colouring of the young insects has given place to a very bright livery. The full-grown caterpillar, measuring nearly an inch and a half in length, is bluish grey in colour with three orange-red stripes along each side; between the lowest of these stripes is a bright blue band, and down the back runs a white stripe. They have an infirm foothold, and may frequently be seen on the ground below the trees on which they have been living. About June they separate and spin yellowish silky cocoons amongst the leaves or on neighbouring posts or railings. From these cocoons a moth emerges in three weeks or so. The female moth measures about one and a half inches from tip to tip of her wings; the male is smaller. In colour the moth is a rusty brown, the hind wings being paler than the fore wings, and across the latter run two transverse bars.

Remedies.—The damage caused to the foliage by a healthy brood of Lackey Moth caterpillars is very considerable, and means must be taken to destroy them. Many of the egg bands will be removed in pruning; others, when found, should be cut off and burned, or the eggs destroyed with a blunt instrument. The tents should be destroyed early in the season and, as they are easily seen, this should cause no difficulty. Spraying is useless, owing to the habit the caterpillars have of retreating to their tents at the slightest sign of moisture. Shaking the branches will cause many of the grubs to fall to the ground, when they can be destroyed, and a grease band round the tree is useful in preventing stray insects from reaching the foliage again. Elm, Oak and Hawthorn are also food plants of this insect, so a sharp look out should be kept on any of these trees that may be growing near fruit trees, and the insects should be destroyed lest they travel to the Apple and Pear trees, as they assuredly will sooner or later.

Sometimes partial egg bands are found, hairy instead of smooth; these are laid by the March Moth, another injurious insect.

MUSSEL SCALE INSECT.—While making an examination of the young Apple and Pear twigs for the egg bands of the Lackey Moth, it will be well carefully to scrutinise the older wood for other signs of insect life. If the trees have been neglected—and this applies to Plum, Peach, Cherry, Nectarine and Currant, as well as to Apple and Pear trees—the older wood will probably be covered with thousands of minute dark brown bodies, resembling small mussel shells in shape,

hence the name Mussel Scale. Each Scale is about one-eighth of an inch long, rounded at one end, pointed at the other, and fixed firmly to the bark. Lift up one of these scales carefully with a knife-blade and in all probability a greyish dust will be found below the broad end of the scale. This dust is formed of the eggs of the Scale Insect. In June the eggs will hatch into small greyish six-legged grubs. Each grub, provided with a beak, crawls from beneath the scale, digs its beak into the bark of the tree, and there remains fixed. Wax is exuded from the insect's body, and this wax, together with the skin of the grub, forms the scale, which is simply a protection. If the grub be a female it then loses its legs, and never moves from beneath its scale. The male, on the other hand, after a short chrysalis stage, turns into a small winged insect whose duty in life is to fertilise the females beneath their scales. But—and this accounts for the very rapid spread of the Scale Insect—the females can and do produce eggs without being fertilised. It may be asked how the minute Scale Insect damages fruit trees. The damage is twofold. During life each Scale Insect is continually sucking the juices from the tree by means of its beak, just after the manner of the Greenfly on the Rose tree; at the same time the Scales, on account of their large number, block up the breathing pores of the tree.

Remedies.—Mussel Scale is difficult to eradicate, but there is no doubt that spraying with strong paraffin emulsion in winter is the most satisfactory treatment. This insecticide must not, of course, be used in summer; but if the attack is a bad one, the trees may be sprayed with soap and quassia early in June, when the insects are hatching from the eggs. The Lackey Moth caterpillar affords an excellent example of a biting insect, whilst the Mussel Scale is a typical sucking insect.

PITH MOTH.—Apple growers, with nursery stock, are often puzzled by the flagging and eventual death of leaves and blossom without apparent reason. If these phenomena occur a careful examination should be made of the shoots, near a bud, when a small round hole and a blister will indicate the presence of a Pith Moth caterpillar. The moth is about half an inch in wing expanse. The fore wings are black and often marked with very dark brown; the hind wings, grey in colour, are fringed along the edge. The head may be either white or black; there are two species.

The eggs are laid in July and August, and the grubs feed, at first, on the leaves of the Apple and sometimes of the Pear. The caterpillars when full grown are about one-third of an inch long and of a dull reddish brown colour, with a darker brown, nearly black, head and pale brown spots on the body. As the time draws near for the Apple leaves to fall the young caterpillars tunnel into a bud, and later still they burrow into a shoot near a bud, where they remain during the winter. In the following spring they tunnel along the pith towards the end of the shoot. If a suspected shoot be broken and the suspicion

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TRUMPET DAFFODILS ARE RARELY SEEN TO BETTER ADVANTAGE THAN
WHEN PLANTED BY THE LAKESIDE. THEIR REFLECTED FLOWERS
GIVE AN ADDED CHARM TO THE SCENE.

be well founded, either a caterpillar or a chrysalis will be found near the end of the shoot, in the cavity previously occupied by the pith. The chrysalis is of a deep yellow colour and about a quarter of an inch long. The moths emerge from the ends of the shoots about July.

Remedies.—This is a troublesome pest to deal with, for it spends a great deal of its time out of reach of insecticides. All attacked twigs, and they may soon be recognised, should be cut off and burned before the moths emerge. Spraying with an arsenate of lead wash at the time when the young caterpillars are feeding on the leaves is efficacious, but, needless to say, great care must be taken with the fruit in using such a poisonous wash.

APPLE BLOSSOM WEEVIL.—About the time that the Apple and Pear blossom should be opening—the words “should be” are used advisedly—the observant gardener may notice large numbers of small black beetles visiting his trees. If each beetle is about one-sixth of an inch in length, with a long slender curved head and neck, reddish feelers, and a pale V-shaped mark on its back—this latter is a sure means of recognition—he will know that his trees are receiving unwelcome attention from the Apple Blossom Weevil. Further observation will show him some of the beetles, the females boring a hole in each bud, depositing one egg in each hole, and sealing up the cavity with saliva. Each female continues egg laying for a fortnight, and as each one is said to lay about fifty eggs, with never more than one to a bud, it is easy to compute the great power for harm these insects possess.

About a week after egg laying, each bud contains a single small white legless maggot, which lives on the floral organs and eventually kills the bud. Two weeks later the maggot, fully fed, turns into a chrysalis, from which, after another week, the perfect beetle emerges and bores its way out of the dead bud. For the remainder of the summer the beetle feeds on Apple leaves, and when autumn comes it seeks out a hiding place beneath some rough bark or dead leaves, where it hibernates during the winter, issuing forth again in the spring when the young flower buds are in a fit state to receive the eggs.

Remedies.—Shake the trees well, before the beetles emerge from the buds; very many dead buds, containing maggots, will fall to the ground and must be collected and burned. Dead leaves and rough bark—winter hiding places of the beetles—should be got rid of; much rough bark can be dislodged by scraping with a blunt instrument. The beetles themselves may be shaken from the trees into tarred cloths. In winter spraying with lime and salt wash will kill most of the hibernating beetles.

APPLE SUCKER.—Very often the Apple blossom fails to open, and the most careful scrutiny does not reveal the presence of the little black beetles with the typical V-shaped marks on their backs; then the cause of the trouble must be sought elsewhere. The Apple Blossom Weevil is not the culprit, for its presence would soon have been revealed.

Probably some of the blossoms will open, and then just before the petals are ready to fall they will shrivel up and turn brown. This is a sure indication of an attack of the Apple Sucker, one of the worst of Apple pests. From May to November the small greenish yellow insects visit Apple trees. Each insect is about one-eighth of an inch long, and although provided with a pair of transparent wings, it has also considerable jumping powers. The least movement of a leaf on which one of these insects has settled will cause it to spring into the air and take to flight. Whitish eggs are laid on spurs and buds in October, and hatching does not take place till the following spring, so the eggs should be looked for and suitably treated in the winter. About April, though the time varies considerably, yellowish, flattened, red-eyed, brown-legged grubs hatch out from the eggs, and at once crawl into the folds of a bud and begin to feed. Soon the grubs turn green, and then they leave the buds for the foliage leaves, which they often fasten together in pairs as a protection; then, fixing their beaks into the tissue of the leaf, their skins burst, and the perfect winged insects emerge. The cast skins remain fixed to the leaves and often reveal the presence of the Apple Sucker.

Remedies.—It was mentioned above that the time of hatching from the eggs varies very considerably, hence a difficulty arises in dealing with this insect. One spraying will rarely kill all the grubs, even if the Apple trees are all of the same variety. Where it is necessary to deal with different varieties of Apple in the same orchard, the difficulty is increased, for the time of hatching varies according to the variety. It is useless to attempt to kill the eggs by spraying, but the grubs may be prevented from entering the buds by spraying with the following mixture during March:—Lime, $1\frac{1}{2}$ cwt.; salt, 40 lbs.; water-glass, 5 lbs.; water, 100 galls. The adult winged insects may also be killed by spraying the trees with paraffin emulsion directly after the fruit is gathered. If the spray is sufficiently dense, many of the insects will be killed on the wing as well as on the trees. The lime-water-glass wash is, however, a well tried and efficient remedy.

CODLING MOTH.—The maggoty Apple is too well known to need description, and the maggotiness is usually caused by the grub of the Codling Moth. Each grub is about half an inch in length, pale pink, with a brown head, and slightly hairy. These caterpillars must not be confused with the grubs of the Apple Sawfly, which often occur in Apples. The Codling Moth caterpillar has five pairs of fleshy legs; the Apple Sawfly has more. The moth is about half an inch from tip to tip of its wings, and in bright light appears of a metallic sheen; both wings are grey, and the fore wings have dark wavy markings, and an eye spot at each edge. The female lays a single transparent egg, resembling a drop of dew, on the side of each young Apple. Each female is said to lay about a hundred eggs, and as only one egg goes to each fruit, the pest is one to be rigorously guarded against. As soon as the caterpillar comes out of the egg, it crawls to the eye of

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IN THE WILD GARDEN AT BATSFORD, GLOUCESTERSHIRE. THE LARGE-
LEAVED PLANT IS SAXIFRAGA PELTATA.

the Apple, enters, and passes down to the core, ejecting meanwhile its excrement at the mouth of the hole it has made. This brown, powdery excrement often gives the first indication that an Apple has been attacked. When the caterpillar is fully fed, it bores its way out of the Apple, and passes down to the rough bark, or some other hiding place, where it spins a cocoon, from which the moth appears in the following spring, ready to lay its eggs on the young Apples.

Remedies.—A sure remedy is to spray the trees with Swift's arsenate of lead paste, but great care must be taken to see that the spray is as fine as possible; then, if the operation be carried out about a week after the blossom has fallen, the eyes of the Apples will be so saturated with the poison that when the young caterpillars commence to eat their way in, their exploring proclivities will receive a sudden check. A band of hay fastened round the trunks of the trees in June will form a hiding place in which the insects will spin their cocoons, and these may be collected and destroyed in numbers during the winter.

PEAR MIDGE.—This insect, though of quite a different nature from the Codling Moth, causes somewhat similar damage. It is increasing in alarming proportions in this country. The first sign of an attack will probably be made apparent by some of the young Pears growing rapidly—too rapidly. If one of these precocious fruits be cut open it will be found to contain a number of white maggots, each about one-seventh of an inch in length. Usually the maggots escape through cracks which develop in the Pears; they fall to the ground, where they burrow a little below the surface at the foot of the tree; here they spin a cocoon and remain below ground all the winter. About April the Midges hatch out; they are an eighth of an inch long and black in colour; the wings are sooty, and are fringed with black hairs on the hind margin. A few yellowish hairs are present on the fore part of the body. The female may be recognised by the long egg-laying organ; she is paler in colour than the male. By means of the egg-laying organ eggs are laid in the Pear blossom, several eggs to each flower. The eggs hatch in about six days, and by the beginning of June the grubs begin to leave the fruits.

Remedies.—This is probably the most difficult of all insect pests to stamp out. Removing the surface soil from round about the Pear trees and burning is one of the most effectual remedies. Spraying the unopened buds with nicotine wash and so rendering the flowers unpleasant to the egg-laying females, does much good. In small gardens the attacked fruits should be hand picked and burned, but this can hardly be called a remedy, for more Midges may always put in an appearance from a neighbouring garden and so cause further damage.

PEAR SLUGWORM.—During August, September and October a sharp look out should be kept for the Pear Slugworm, not only on Pear trees, but also on Cherry trees. The peculiar feeding habits of the grub render this an easily recognised pest. The upper surface of

the leaf only is eaten, and the lower transparent skin is left intact, so that the leaves have a peculiar spotted appearance. The grubs should be sought; they are about half an inch in length, dark green above and yellowish below, and have a slimy appearance—hence the name Slugworm. The head appears swollen. After about four weeks, the green colour gives place to yellowish green, then the worms pass to the earth, where they turn into chrysalids below the surface. In two weeks each chrysalis gives rise to a black, very shiny fly, about one-third of an inch in length, each wing being marked like a smoky band. The female lays her egg beneath the skin of the leaf, and in about a week the worm hatches out. There are two broods of this pest in a year; the first brood of flies appears in June, the second in August. When the leaves are badly damaged, the tree puts forth fresh foliage, thereby becoming weakened, and as a consequence the next year's crop results in failure.

Remedies.—Spraying the trees with arsenate of lead is a certain remedy, and will kill all the slugworms. Where only a few trees are grown the pest may be eradicated by removing and burning the surface soil in winter.

GOOSEBERRY SAWFLY.—This pest causes the leaves of Gooseberries and often of Red Currants, though rarely those of Black Currants, to appear as though riddled with fine shot; at least, this is during the first stage of the attack, for, later on, the leaves may be entirely eaten, and then the grubs turn their attention to the fruit. The caterpillars of certain moths, notably those of the Magpie Moth, feed on the Gooseberry; but they never have as many as twenty legs, the number assigned by Nature to the grubs of the Gooseberry Sawfly. The flies appear in April. They are black and yellow in colour, and vary in length from a quarter of an inch in the male to one-third of an inch in the female. The eggs are laid in rows along the ribs on the lower surface of the leaf, each egg being placed in a little slit cut in the leaf by the female. The Sawflies obtain their name from the fact that each female possesses a sawlike organ which she uses to cut into plant tissues and there lay her eggs. In some Sawflies the eggs are laid right in the plant tissues; in the case of this Sawfly, however, the eggs are only partially buried. The eggs are very pale green in colour, and in from five to twelve days the grubs hatch out. At first the grubs are green, with black heads and black spots on their bodies; their tails are orange-yellow, and the same colour is present just behind the black head. When the grubs are fully fed the black spots vanish and the head turns brown; their total length is then about two-thirds of an inch. Most of them fall to the ground and turn into chrysalids just below the surface; from these chrysalids another brood appears in three weeks. The last brood of grubs in any year also passes into the ground, when each grub spins a cocoon in which it spends the winter.

Remedies.—Remove and burn surface soil to a depth of four inches in winter. Apply and deeply dig quicklime in autumn. Hand pick

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FOXGLOVES IN A GARDEN GLADE.

in the *early* stages before the grubs have spread ; the grubs when first hatched all feed on the leaf on which the eggs were placed ; then they may be picked off wholesale, later they spread about the plant and cannot be dealt with in this way. Early attacks may be eradicated by spraying with Swift's arsenical paste (this should not be used within four weeks of gathering the fruit) ; later attacks may be kept in check by a spray of weak paraffin emulsion. The bushes may be made distasteful to the flies by dusting them with tobacco powder or dry soot and air-slaked lime, mixed, in equal parts. Hellebore powder may be applied while the bushes are damp.

ROSE, or GREEN CHAFER.—This beautiful beetle—in colouring it rivals many of the most brilliant exotic insects—does not confine its attention to Strawberries, Raspberries, Roses, Vines, Apples and Plums, but it also does a considerable amount of damage to Turnip grown for seed by eating the anthers, and so preventing the formation of seed. The beetles appear early in May. They are of a bright metallic green, appearing golden in sunlight, and on each wing case there are several white spots arranged in such a manner as to give the appearance of a dent, just as though the beetle had been partially crushed. It is difficult to imagine a greater contrast between extreme lethargy and wonderful vitality than is afforded by the behaviour of this beetle on dull and bright days respectively. When the weather is bright the beetles fly from plant to plant, feeding ravenously all the time. Roses, Raspberries and Strawberries in their flowering seasons are specially favoured. This continues for nearly three months, then the female beetles retire to the ground and lay their eggs at a considerable distance below the surface. The grubs hatch out in about a fortnight. When full grown each grub is about one and a half inches in length, much wrinkled, of a dull white colour except for the hinder part, which is the colour of lead, and is curved towards the head. These grubs closely resemble those of the Cockchafer, but they may be recognised by the presence of a rusty coloured horny spot on each side of the body just behind the head ; these spots are absent from the grubs of the larger beetle (Cockchafer). For a period of at least two years the grubs remain below ground feeding the while on the roots of any of the above-mentioned plants. After this protracted feast, they each form cocoons, within which they turn into the chrysalids from which the beetles eventually arise.

Remedies.—Owing to the sluggish habits of the beetles on dull days large numbers may be caught by hand and destroyed. If Raspberries are seen to flag, they should be deeply forked round about and the grubs picked out and killed ; a dressing of soot-water to follow will exterminate the remainder.

WOOLLY APHIS.—A very common insect pest, nevertheless a troublesome one, is the Woolly Aphis or American Blight. In nearly every orchard either the insect itself or the results of its work may be seen. The first indication of anything being amiss with the Apple

trees—Woolly Aphis confines itself almost wholly to these plants—will almost certainly be the appearance of patches of a white fluffy substance, resembling cotton wool, on various parts of the trunk and branches. These woolly patches are composed of Aphides, and the wool is a secretion from their bodies. So important is this pest, and so distinctive in its habits and life history, that a somewhat detailed study must be made of the changes through which the insect passes in the course of a year.

An examination of an Apple tree attacked by Woolly Aphis will reveal the presence of what are known as "mother queens," at any time of the year. These "mother queens" are plum-coloured, and have reddish brown legs; they are covered with a mealy secretion, and may be found hiding beneath loose bark, and in any cracks and crevices likely to afford shelter. A most important point, and one to be carefully noted, is this—the "mother queens" produce living young. There are no males (at any rate for the greater portion of the year) and no eggs. Just the living young produced by the "mother queens," and produced rapidly, too. This rapid production is an excellent provision of Nature, a splendid time saver from the point of view of the Aphis, but the gardener's point of view is another matter. The young Aphides live for a time in a colony with the parents. At first they are yellow, but later they moult and become pale plum-coloured; after the moult they wander to other parts of the tree and secrete large quantities of the white wool that has already attracted the gardener's attention. Very early in life this first brood will imitate their parents and produce living young, which in turn will perform the same duty, and so the rapid spread of the Woolly Aphis is merely a question of time. Towards autumn, instead of the production of living young, capable themselves of producing more living progeny, a brood of wingless males and wingless egg-laying females may arise. Both of these forms are very minute, and orange in colour. Each of these females crawls to the base of the tree, lays a single egg just above ground, and then dies. From each egg a "mother queen" appears in the spring.

All the forms of Woolly Aphis described above are wingless, but sometimes, during the summer months, winged females are produced, each one capable of producing living young. By means of these winged forms the pest is spread from tree to tree. The forms of Woolly Aphis inhabiting the stems and branches are easy to detect and not very troublesome to eradicate, but there is one other point to be noted—roots and portions of the stem below ground are also attacked. It is useless to treat the aerial parts of an Apple tree for this pest and to ignore the parts below ground. The neglect of this precaution undoubtedly accounts for the annual appearance of the "blight" in certain orchards, for the root forms will travel up the stems, from time to time, and *vice versa*. This Aphis belongs to the group of sucking insect pests, and the damage it does is twofold—owing to the loss

of sap occasioned by the insects the tree loses in vitality, and where a colony of Aphides have dwelt, a wound is always made, a wound that invariably becomes a vulnerable spot for an attack of "canker."

Remedies.—The pest must be treated above and below ground simultaneously. Above ground the trees should be sprayed hard with a plentiful supply of soft soap and quassia wash to which about 3 per cent. of paraffin should be added in the summer. A fine misty spray, so essential in dealing with fungoid pests, is useless in this case; force must be used and a thorough wetting be given, for the wool acts as a protection to the insects, and unless their bodies are actually wetted by the wash no good will result. Below ground injections of carbon bisulphide form the only known remedy. The operation may be carried out by means of a Vermorel injector, and it is essential that the soil be dry at the time. One injection should be made on each of the four sides of the tree at a distance of 2 feet or so from the trunk. Two to 4 ounces of carbon bisulphide should be used for each tree—the larger the tree the more injection required. The fumes of the chemical will kill all the subterranean Aphides, but care must be taken not to allow the liquid itself to come into contact with the roots—the vapour is harmless to plant life, the liquid harmful.

It is well to mention that the blue tit, much maligned by many gardeners, is the greatest natural enemy of the Woolly Aphis. The Woolly Aphis is not by any means the only insect of its class known to gardeners.

GREENFLY—an Aphis, by the way—is prevalent everywhere. The Black Aphides to be found on Cherry trees, and those of a similar colour frequenting Broad Beans, are hardly less common, whilst Plums, Nuts, Peaches, Currants, Gooseberries, Raspberries, and Strawberries are none of them immune from Aphis attacks. The various Aphides differ in details, of course, but an account of the common Greenfly will suffice for the group. The life history of the Rose Aphis, or Greenfly, is very similar to that of the Woolly Aphis. The "queen mothers," early in the year, produce living wingless young, and so on. Then a brood of winged females arises, the members of this brood fly to other Rose trees, produce living wingless females, which in turn produce a brood similar to themselves. At the end of the season males and egg-laying females are produced. Eggs are laid on the Rose trees, and in the spring give rise to the "mother queens." We here observe a marked difference between the Greenfly and the Woolly Aphis. In the case of the Greenfly the winter is always passed in the egg stage, but the Woolly Aphis may exist at this period as an egg or as an adult female, either above or below ground. The Greenfly is too well known to require description, but one or two points, common to all Aphides, may be noted with advantage. All Aphides are protected by a secretion, usually of an oily nature, so that any liquid falling on them will run off like water from a duck's back. For this reason all spraying

must be forcible. Many Aphides cause deformities in the leaves on which they live, to such an extent that the leaves curl up and form a hiding-place for the insects. Therefore spray at the first sign of an attack, before the formation of these leaf shelters, into which little or no liquid can penetrate. Use soft soap in all washes, so that the breathing pores of the Aphides may be blocked. Remember that most of the Aphides contain living young, which can emerge from the dead bodies of the parents, so that sprayings on more than one occasion are necessary—first to kill the parents, then to kill the progeny, and the latter must be killed off before they themselves contain living young.

Remedies.—Spray with soft soap and quassia wash. Petroleum is often added, but great care must be taken in its use, for its corrosive action frequently does more harm than good. When the Aphides are killed another spraying with water is recommended—this will remove the dead insects.

RED SPIDER.—Plants grown under glass are very liable to attack by this pest, which, by the way, is not a true insect, but belongs to the class of "mites." The mites obtain their nourishment from the undersides of the leaves of plants; this causes the leaves to become blotched, and finally brownish red in colour. If one of these leaves be carefully examined several very small, spherical, almost colourless bodies will be found; these are the eggs of the Red Spider. From each egg a very minute six-legged mite appears; as it grows it casts its skin, and then is provided with another pair of legs. These adult "Spiders" spin a very fine web on the under surface of the leaf, and beneath it they live. The presence of the web makes it very difficult to do any good by spraying. The winter is passed either in the adult stage, in which case some hiding-place, such as a piece of old bark, is sought for the resting period, or as an egg attached to the stem of the plant on which the mite has lived during the summer.

Another mite, also known as the Red Spider, is commonly found on Gooseberries, but this mite may be distinguished from the one described above by the fact that its first pair of legs is longer than the others; moreover, it spins no web. In the web-spinning Red Spider the legs are all of the same length. In a bad attack the Gooseberry leaves become stunted and may even fall off, but in any case they turn to a greyish silvery colour. During spring the red mites may be found hiding in crevices in the bark. When the leaves appear they begin to feed on the under surfaces. They soon commence egg-laying. Each egg is red in colour and exceedingly minute; after a few days six-legged transparent mites hatch out; they feed and moult, becoming then eight-legged and reddish like the parents. After a fortnight or so this brood, too, commence egg-laying.

Remedies.—For the web-spinning Red Spider, spray frequently with cold water before the webs are formed. This treatment is useless in the later stages. When once the Spiders have made their webs the only remedy of any real use is to fumigate with sulphur; several

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ENCRUSTED ROCKFOIL (SAXIFRAGA LANTOSCANA) ON A SUNNY BANK.

excellent fumigators are on the market, or the operation may be carried out by painting the hot-water pipes with flowers of sulphur. This latter method requires great care or damage may be done, and it is better to use properly designed apparatus. For the Gooseberry Red Spider, spray about February with paraffin emulsion (5 gals. of paraffin to 100 gals. of water). This should kill any mites hiding in the wood, buds, etc. If the plants are attacked later in the year, give two sprayings at an interval of a fortnight with paraffin jelly, made by boiling together 5 gals. of paraffin and 8 lbs. of soft soap, to which, after a thorough mixing, a pint of water has been gradually added. When cold this mixture sets to a jelly. To make up the wash add 4 gals. of water to each pound of jelly.

WIREWORM.—This pest is so called on account of its appearance—each grub resembles a short piece of wire, of an orange colour. The worms are the grubs of beetles known as "Click Beetles," or "Skip-jacks," on account of their habit of jumping into the air with a clicking noise when placed on their backs. There are four distinct beetles, each of whose grubs are known as Wireworms, but it is inexpedient to describe each beetle in detail. The four beetles range in colour from dark brown to black; they are long and narrow in outline and each one has the peculiar habit from which it derives its popular name. The grubs are each armed with six legs and a sucker foot, and this fact, together with their wirelike appearance, will serve to distinguish them from other somewhat similar grubs. The beetle lays its eggs on a stem near the ground, or in the soil, and as soon as the grubs hatch out, they begin feeding on the subterranean parts of the plant just below ground. The time of feeding varies from three to five years; it appears that a certain amount of food must be consumed before the chrysalis stage is attained, and as the grubs go deeper below the soil surface in severe weather, a lack of food and cold surroundings prolong the feeding period—plentiful food and mild winters shorten this time. When fully-fed, a cigar-shaped chrysalis is formed at a considerable depth below the surface of the soil, and if this takes place in the summer the beetles will hatch out in about three weeks; if the change occurs in autumn, the hatching is postponed till spring. All kinds of crops are liable to be attacked by Wireworm, but especially to its liking are Carrots, Turnips, Parsnips, Carnations and bulbs. Seeing that the feeding period is such a protracted one, the damage done is considerable.

Remedies.—After an attack dress well with gas lime. Pieces of Potato buried below the surface of the ground will attract the grubs—these "traps" should be lifted every twenty-four hours and burned. Artificial manures, of such a nature as to cause the crops to grow freely (e.g. nitrate of soda) will prove beneficial in many cases by enabling the plants to grow away from the attack.

CRANE FLY or DADDY-LONG-LEGS.—This fly is one of the commonest flies in our fields and gardens during the summer months, and by the

uninitiated is looked upon as a harmless visitor; and so it is in the fly stage, but the grubs, called "Leather Jackets," on account of their tough, leather-like skins, do an incalculable amount of damage, more particularly in badly drained places. Towards autumn each female lays about three hundred shiny black eggs, either on grass or just below ground. In about a fortnight a brown grub hatches from each egg. When full grown the grub is an inch and a half long, blunt at the tail end and pointed at the head. Their black heads are provided with a pair of black jaws, easily seen when protruded, but they can be drawn into the head at will. These grubs feed on the roots of grasses, etc—they are very destructive to lawns—right through the winter months. In the summer each grub turns into a chrysalis, differing little in colour or shape, but now the skin is provided with stiff bristles. In a fortnight or so the chrysalis wriggles its way to the surface of the soil; the bristles enable it to do this, and the perfect fly emerges. Though the feeding time is not so lengthy as in the case of the Wireworm, it is long enough for considerable damage to be done.

Remedies.—The best remedy is a natural one—starlings eat the "Leather Jackets" in thousands, and the obvious excitement of a flock of starlings on a lawn will often indicate the presence of these grubs. Good drainage is essential. A dressing of nitrate of soda and common salt—one part by weight of the former to two parts of the latter—will stimulate plant growth and kill off the eggs and grubs.

CURRENT GALL MITE.—It is frequently obvious that something is radically wrong with certain Black Currant bushes, but no insect or fungoid pest can be observed. In winter many of the buds appear to be abnormally large; these are known as "big buds," and their abnormal condition is caused by very minute Gall Mites—so minute as to be invisible to the naked eye. Cut open a swollen bud, and examine the centre with a hand lens; several almost transparent, cylindrical, four-legged Mites will be observed. There are male and female Mites, but it is unnecessary to try to distinguish them. Eggs are deposited in the buds. During winter and spring the Mites remain in and deform the buds; later in the year they crawl down to the bases of the leaves when new buds are being formed; these they attack, and at the same time render abortive. The Mites spend their whole time on the Currant bushes, either in the buds or wandering along the stems to fresh buds.

Remedies.—It is perhaps as well to state at once that there is no remedy. Lime and sulphur has been much boomed as a remedy, but it has failed in such a number of cases that it may be dismissed. It is most important to obtain and plant only clean stock. Immersing cuttings for ten minutes in water at 115° F. is said to kill all the Mites, though this remedy has never been tried by the writer. In small gardens much good may be done by hand picking. Twice a year all the swollen buds, and also the one immediately above and the

one immediately below a swollen bud should be picked off and burned. In larger gardens hard pruning once a year will tend to keep the pest in check.

SCALE INSECTS form an important group of garden pests. All are provided with sucking mouths, all are devoid of wings, most of them are stationary during the greater part of their lives. Mussel Scale has already been mentioned; other common garden Scales are those of the Apricot and Peach, Currant, and the brown, soft variety. Scale Insects are frequently to be found on the leaves and stems of plants grown under glass—an examination of the leaves of an Oleander will often reveal a typical Scale Insect.

Remedy.—All kinds of Scale should be treated *in winter* with caustic alkali wash, composed of 2 lb. of caustic soda and 10 gals. of water. See note on Mealy Bug below.

THRIPS.—Several insects are grouped under the designation Thrips; all are harmful to plant life. Practically every plant grown under glass is liable to attack, as also are Peas, Roses, etc., grown in the open. An examination, under a microscope, of any Thrips will show that the feet are provided with suckers in place of claws; this is a distinguishing feature of these insects. Black is the predominant colour of the perfect insect. Each of the four wings is edged with hairs; the grubs are paler in colour; in fact, they are often yellowish and always devoid of wings. These insects confine themselves to the foliage and flowers of the plants they attack, and are most commonly to be met with on the undersides of the leaves. Damage is done by Thrips in the grub stage and in the perfect insect stage by a continual sucking of the plant juices.

Remedies.—A mild attack may be combated by simply spraying with cold water, but a more effectual remedy is to spray with tobacco wash in May or June. This wash may be made by infusing half a pound of tobacco-leaf in water for six hours, adding the infusion to a solution of half a pound of soft soap in water, and making up with water to ten gallons.

MEALY BUG.—These insects belong to the same group as the Scale Insects. Vines, Cucumbers, and Melons are liable to attack by these pests, but other plants under glass are by no means immune. The females are oval and are covered with a white mealy secretion. Each insect is segmented like a shrimp, and numerous pointed outgrowths can be plainly seen projecting around the margin. The total length varies from a twelfth to an eighth of an inch. The Bugs may often be found hiding in colonies beneath the loose bark of the vine, or crawling along the leaves. Winged males appear in the summer, they are mealy too, but, unlike the females, they are brownish in colour and not white.

Remedies.—This is a difficult pest for the amateur to deal with. The best results have been obtained by fumigation with hydrocyanic acid gas, but it is not an easy operation to carry out successfully.

Vine stems, after scraping, may be painted over with methylated spirit, and more delicate plants may be carefully painted with diluted caraphorated spirits of wine; this will check the pest and cure mild attack.

INSECTS INJURIOUS TO VEGETABLES

THE CARROT FLY.—Gardeners are often at a loss to account for the young leaves of their Carrots turning reddish coloured in the spring. An examination of the root of one of these ailing plants will soon unravel the mystery; it will probably be covered with rusty blotches, as a result of the ravages of the grubs of the Carrot Fly. On account of the rusty appearance of the damaged parts, this fly is sometimes called the Carrot Rust Fly. The fly itself is about a quarter of an inch in length, black with a greenish tinge; its head and legs are pale yellow and its eyes are red. The eggs are laid on the stem just below ground, and when the grubs appear they make their way to the roots, where they feed. In bad attacks the Carrots are riddled with the tunnels of these grubs, each one of which is yellowish in colour, smooth, pointed at head, obtuse at tail; in fact, similar to a Cheese Hopper. The transparent body admits of all the internal organs being plainly seen. The first brood of grubs appears in spring, and before early summer each grub has changed into a horny, coppery-coloured chrysalis—easily distinguished from other somewhat similar chrysalids by being of a rusty colour at each extremity. Several broods appear in a year, and the later ones will even attack stored Carrots. Celery and Parsnips are also attacked by this pest.

Remedies.—After thinning, apply a heavy dressing over the plants of one part of finely powdered washing soda mixed with two parts of fine earth. Pull all Carrots showing reddened leaves, and fill up the cavities with the above-mentioned mixture. Deeply trench the land after an attack.

CELERY FLY.—The blistered leaves of Celery caused by the ravages of the Celery Fly grub are all too familiar in many gardens, and may be observed at any time from the planting out of the Celery till Christmas. The Celery Fly is about an eighth of an inch long and brown in colour. Each transparent wing is mottled with brown, and behind each wing is a yellowish knob, the balancer; the eyes are dark green. May is the most favourable month to observe these flies. The eggs are laid on the Celery leaf, and, within a few days, legless pale green grubs appear. They bore into the leaf and take up their abode between the upper and lower skins, feeding all the time on the green tissues within, and so the blistered appearance arises. When fully fed, the grubs turn to brown chrysalids either within the leaf or in the ground. In any case, the change from the fly through the various stages to the fly again is so rapid that certainly two and sometimes more broods appear in a season. Great damage is done to the foliage, and to the rest of the plant by the tunnelling proclivities of the

grubs. The last brood always seeks the ground before attaining the chrysalis stage, and there remains for the winter.

Remedies.—Carefully pinch the grubs between the skins of the leaf, if not too numerous. Encourage healthy and rapid early growth. As a preventive, sprinkle the leaves with a mixture of one part unslaked lime, one part gas lime, and two parts mixed earth and soot; this will discourage the flies from laying their eggs on the plants. Early spraying with weak Bordeaux mixture is also efficacious. Strong spraying of the foliage will also drive away many of the flies; they dislike moisture. Parasips are attacked in a similar way.

ASPARAGUS BEETLE.—A very common but none the less destructive pest. The Beetles are a quarter of an inch long, blue-black to greenish in general colour, with four yellowish blotches of such a nature as to make the blue-black portion appear cross-shaped. The head is black, and the portion behind the head reddish. The eggs are easily found; they are blackish and spindle-shaped, fixed by one end to the Asparagus shoots, and often arranged in rows. The slate-coloured grubs remain fixed to the plants by fleshy feet at the ends of their curved tails, and this makes them difficult to dislodge. During their two weeks' existence they feed freely and do considerable damage. When fully fed the grubs pass to the ground, turn into chrysalids, and the Beetles appear again in less than three weeks. The complete life-cycle only occupies seven weeks, so that there is more than one brood in a year.

Remedies.—The Beetles themselves may be collected in large quantities. The grubs cannot be hand-picked on account of their firm foothold, but if the plants are dusted freely with fresh air-slaked lime early in the day while the dew is still on the plants the pest will be rapidly exterminated.

A complete account of all the injurious insects affecting only one kind of crop would fill a small volume, so, perforce, leave must be taken of the subject with the mention of a pest, of very frequent occurrence, that is not an insect, scientifically speaking. Reference is made to

THE EELWORM.—A large proportion of the mysterious failures in the plant world may be put to the account of this pest. Its attacks are rendered doubly effective because the gardener is often unaware of an attack till the damage is done, owing to the fact that the worm passes direct from the soil into the roots of the plants, and also because the pests are so small that they can hardly be seen by the naked eye. Plants attacked by Eelworm are stunted, and the affected parts swell. Strawberries, Tomatoes, Onions, and Hyacinths are frequently attacked.

Remedies.—The only method of dealing with this pest is one of prevention. Dressings of lime and of sulphate of potash will keep the worms in check. Affected plants should be removed and burned; and it is well to remember that land once infested by Eelworm may remain so for some years.

CHAPTER XXIII

FUNGOID DISEASES OF CULTIVATED PLANTS, AND HOW TO COMBAT THEM

THE practical gardener learns by experience that very many and varied factors combine to assist or hinder him in his profession. A little carelessness in watering will leave him with plants suffering from a surfeit of or a lack of water; temperature too high or too low is detrimental to the health of his charges; an insufficient air supply, again, causes unhealthiness—these are only a few of the points to be watched. Insects, too, do an enormous amount of damage in the plant world, but of all the trials a gardener must perforce endure, the most troublesome, the most insidious, are those created by fungi. Before entering into details as to the various fungi causing plant diseases, it is well to describe a fungus in some detail, its structure, its mode of obtaining food, and its means of reproduction.

When we read that there are 40,000 species of fungi known to science and many of them cause plant diseases, it is obvious that we are dealing with a formidable proposition, numerically, at any rate.

Let us take a typical fungus and examine its parts carefully, noting, as we proceed, the uses of these parts. The common mould to be found on damp bread, jam, etc., is a good subject for study, because it is accessible to everybody and is easily observed with the help of a hand lens. Having discovered our mould, we observe that the major portion of it is made up of a large number of little white threads; so numerous are these threads that they form a thick felt over the surface of the jam or bread, as the case may be. Each thread is a little tube, and is called a hypha, the whole collection of hyphæ is known as the mycelium, or spawn. Then, with a hand lens, or even without this adventitious aid, we can see little projections from the mycelium, each one capped by a round knob, resembling closely little pins. These are the organs of reproduction. The knob is a case containing thousands of little one-celled bodies, known as spores. If one of these organs of reproduction be placed under a microscope and be breathed on gently, the moisture will cause the spore case to burst, and the little spores will be liberated. This is continually taking place naturally, and each spore is so light that it is easily carried by the merest current of air to surrounding bodies, and every spore that reaches a suitable medium will grow into a new fungus composed of a mycelium and organs of reproduction. So we learn that the typical fungus is made up of two parts: (1) A vegetative portion, the

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mycelium, whose function is to carry out the nutrition of the plant—for all fungi are plants; (2) a spore-bearing portion, whose function is to increase the race of fungi. Before leaving this subject, let us examine a larger fungus, and see that it possesses these two parts. Picture to yourself a Mushroom. All of the Mushroom that appears above ground is concerned with reproduction; the Mushroom, as generally understood, corresponds to the little pin-like structure in the common mould. The stalk simply holds the umbrella-shaped portion in the air, but the spores of the Mushroom, instead of being enclosed in a little case, are produced on the sides of the flesh-coloured gills. If the top portion of a Mushroom be left overnight, gills downward, on a sheet of paper, millions of spores will be found on the paper in the morning. The mycelium is not so evident, but if a Mushroom be carefully gathered, some little white threads will often remain attached to the base of the stalk; these threads, part of the mycelium, are often erroneously called roots. They are not roots, though they certainly carry out some of the duties of those organs.

All fungi are not exactly of the types described; some are more complicated in structure, others again are less complex, being composed of one cell only. Let us next consider the mode of life of a fungus. All fungi are devoid of green colouring matter, or chlorophyll, and this fact at once indicates to the botanist that they cannot manufacture their own food. They are no more able to live without food than are any other plants. Where, then, do they obtain it? Well, they steal it, filch it ready made from other plants. This food question brings us up against a sharp and important division in the fungoid world. Some fungi obtain their food from living plants, and some from dead ones—those that obtain their food from animal sources do not come within the scope of this article. A saprophyte is the high-sounding name given to a fungus that prefers dead food. The mould we have considered and the Mushroom are both saprophytes; so, too, is the fungus causing "dry rot." In general, saprophytes do an immense amount of good in the world as scavengers, converting putrid animal and vegetable matter into less noxious bodies. Seeing that saprophytes only live on vegetable matter that is already dead, they cannot be accused of causing diseases in plants, though a few fungi, notably those causing "damping off," are parasites from choice and saprophytes of necessity. When they cannot obtain living food they turn their attention, as saprophytes, to the plants they have killed.

Parasites are the cause of all plant diseases, fungoid parasites that is, for there are other parasites—Dodder, for example—that can hardly be classed as plant diseases, though some of them are pernicious enough in all conscience. Disease is caused from the fact that the parasite uses up the food that ought to go to the nourishment of its host. The plant on which a parasite grows is always called a host. We shall see later that these parasites fall into two somewhat arbitrary classes—those whose mycelium spreads over the exterior

of the host, sending down a few hyphæ into the plant tissue to obtain food, and those that live within the host entirely, sending out into the air their reproductive organs. To the first class belong the true mildews, such as those of the Vine and the Rose; to the second class belong fungi of the type of the Potato disease.

En passant, beware of the all too common error of calling every fungoid disease and even an insect pest a mildew; it is an easy way of escaping a difficulty, but the mildews form a well-defined group of fungoid plants, as we shall see later. Some disease-bearing fungi are able to attack several species of plants, but more commonly each fungus has a penchant for a single species. Wounds, however caused, are always vulnerable spots that may be readily attacked. Unsuitable external conditions also predispose a plant to disease, and young plants are always more susceptible than old ones.

A fungoid disease does not always cause a disintegration of the tissues; sometimes, as in the case of the fungus causing Club Root, cell multiplication takes place rapidly in the diseased areas, causing them to grow to abnormal dimensions.

No attempt at the classification of the disease-causing fungi has been made in the following notes; mention is made of a few of the common diseases to be found in nearly every uncared-for garden, and in each case methods of treatment have been given. Remedies, as such, are almost out of the question, quite so in the majority of cases, and the gardener is well advised who takes to heart the well-worn maxim: "Prevention is better than cure." If sufficient and well-directed effort is made, there is no reason why a fungoid pest should find sanctuary in any garden. A plant disease of very common occurrence and one, moreover, that occasions considerable mortality is known as

"DAMPING OFF."—The curious who are anxious to satisfy their curiosity as to the nature of the fungus causing "damping off" can easily do so by growing Cress seedlings in a very damp soil and atmosphere, and with a minimum of air, but, where so much disease appears when not wanted, the plan of growing fungoid pests in order the better to study their habits is not one to be recommended. Everybody who has grown seedlings under unhealthy conditions knows the effects of "damping off." Each seedling appears weak and discoloured at or near the ground level; this weakness becomes so pronounced that the seedling eventually falls to the ground. Very quickly neighbouring seedlings are attacked, till nothing remains but a rotted mass covered by a white mould not unlike the common mould already described. Seedlings of the Cabbage family are especially liable to this disease, whilst Peas, Potatoes, and one or two others are exempt. Let us examine the habits of this fungoid disease so as the better to understand its preventive treatment. It has been mentioned that the fungus seen on the rotten mass of vegetation appears to resemble ordinary jam mould, but long before this stage has been reached the little

threads of the fungus have penetrated right into the cells of the seedling stem and caused decay. At the ends of these threads little swellings appear as in the common mould, but here the simile ends, for these swellings are not spore cases, but they may be either bodies which can germinate at once on a suitable host to form new threads, or they may develop bladder-like growths which burst and liberate a number of spores, each furnished with a pair of little tails, for these spores are not wind distributed but swim about by means of their tails in the moisture on the plants. They soon lose their tails, then each spore germinates, sending out a little germ tube, which is able to bore through the young cell walls of a suitable seedling and to develop into another "damping off" fungus. In either case, the spread of the disease is very rapid, for there is no resting period, and plant after plant is attacked in rapid succession. Early in life the fungus is a parasite, but when living food material fails, the fungus changes its mode of life and exists as a saprophyte on its decayed victims. In addition to these two methods of increase, both of which are asexual, the fungus is capable of sexual reproduction also. Male and female organs arise on the hyphæ—notably when food is becoming scarce—fertilisation takes place, and a spherical, thick-walled body is produced as a result. Each of these bodies is capable of remaining dormant in the soil for considerable periods, and capable, too, of germinating and attacking another crop of seedlings in the following season. By means of these resting spores much of this disease is spread.

Prevention.—Great care must be taken in watering. The fungus thrives in moisture, and it also readily penetrates seedlings whose cells are turgid with moisture. Plenty of air should be admitted to the seedlings. Burn all diseased plants, and do not sow another batch of seeds in soil in which there have been diseased seedlings. A disease closely allied to the above is the clumsily named

POTATO DISEASE.—Potatoes are subject to many and varied fungoid pests, but this one alone is styled "Potato disease." This disease becomes apparent about July, and is first noticed in the leaves on which discoloured, yellowish spots appear, most clearly seen on the lower surface. The yellow spots soon turn brown and, finally, after increasing in size so that all, or nearly all, the leaf and stem is involved, they become black. On looking at one of these brown spots with the leaf in such a position that the spot is viewed in a slanting direction, a ring of greyish "mould" is observed encircling each dead patch. This greyish ring is important, for it serves to distinguish this disease from others somewhat similar but comparatively harmless. Each tuber depends on the leaves for its supply of food, food to be stored and to help in the building up of the tuber, so that if the leaves are destroyed the Potato plant is rendered useless. When leaves and stems are badly attacked and blackened they give forth an unpleasant but very characteristic odour; eventually the tubers themselves are

attacked and quickly rot. In these tubers the disease is often carried over from one season to another.

The greyish rings observed round the diseased Potatoes are the hyphæ of the fungus, which grow from the main body of the hyphæ (mycelium) within the leaf; each hypha passes into the air through a pore in the leaf. On the ends of these hyphæ, which are branched, little swellings occur, almost similar to the ones on the "damping off" fungus, and like them, too, they may either germinate and form a new "Potato disease" fungus at once, or they may split up into several two-tailed spores, each one of which is capable of giving rise to a new fungus. The former spores are distributed by wind, the latter travel in the moisture on the leaves by means of their tails. In either case, when the spore germinates it sends out a germ tube which penetrates a leaf and quickly forms a mycelium within that leaf. During dry weather the fungus remains within the leaf and only when moisture is abundant are the hyphæ, bearing the spores, sent out into the air. This accounts for the fact that although many parts may be attacked by the fungus the disease only becomes noticeable in wet weather.

Prevention.—Burn all diseased plants, and do not use tubers for "seed" from a diseased crop. Some varieties are more susceptible than others, so a careful selection of disease-resisting varieties will tend to keep down the fungus. Look to the drainage; excessive moisture encourages the disease. Plants treated with potash and phosphates are less prone to attack than those treated with nitrogenous manures. Spraying with Bordeaux mixture has worked wonders in every case when thoroughly and efficiently carried out. The first spraying should be carried out *before* any disease has appeared, subsequent sprayings should be carried out every two or three weeks, till all fear of infection is over, say, in September. The Bordeaux mixture prevents the spores from germinating, and also has a stimulating effect on the plant. Another very common potato disease is

SCAB, not to be confused with the far more troublesome but less widely distributed Black Scab. Scab, if it rarely attacks the Potato tubers so badly as to render them unfit for consumption, at any rate spoils their appearance, and so lessens their market value. The peculiar roughened, corky scabs and swellings on the surface of the tubers caused by this disease are only too well known. On each of these scabby portions hundreds of very minute spores are formed, and each spore can set up the disease on another tuber at once, or may remain in the ground for a considerable time and attack other tubers at a later date. Although the disease is not one to cause anxiety to the Potato grower, means should be taken to avoid it.

Prevention.—Tubers should be dressed before planting in a solution of 1 oz. of mercuric chloride to 10 gals. of water, made up in a wooden or earthenware vessel. Soak the Potatoes for one and a half hours, and allow them to dry before planting. All alkaline manures

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A SHADY NOOK PLANTED WITH THE BLUE-FLOWERED RAMONDIA
AND THE CREEPING SANDWORT.

should be avoided, and as the spores may remain dormant in the ground for a considerable time, a rotation of crops after an attack is advisable. Far more to be feared than ordinary Scab is the dreaded

BLACK SCAB OF POTATOES.—One of the most destructive of all plant diseases, it is sometimes called Warty Disease, owing to the warty appearance of the tubers. The Black Scab first becomes evident as a slight blackened excrescence round the eyes of the Potato, and in some cases never passes beyond this stage; often, however, the excrescences may grow to be larger than the tuber itself. These warty growths are caused by minute one-celled bodies which exist within the cells of the tuber and pass from cell to cell, utilising the food of the tuber for their own nourishment. Wherever there are warty outgrowths there are found millions of very minute spores which give rise to the one-celled bodies to be found within the diseased tubers. These spores can remain dormant in the soil for at least two years.

Prevention.—Carefully examine all seed potatoes for signs of Black Scab. Dig up and burn all diseased tubers. After an attack a rotation of crops is absolutely essential. A somewhat similar disease, but one that confines itself to members of the Cabbage family, is

CLUB ROOT or FINGER AND TOE.—A plant attacked by Club Root will flag markedly, and if it be a Cauliflower or Cabbage, little or no head will be made. An examination of the roots will reveal the cause. Swellings of considerable size will be found, sometimes as big as a man's fist. A microscopic examination of a section of a diseased root reveals many large cells (giant cells) scattered about among the healthy cells. Each giant cell is filled with a frothy mass made up of a number of somewhat gelatinous organisms. At a later stage of the disease each of these organisms breaks up into a number of spores, which remain within the plant till decay sets in, then they reach the soil, where they may remain dormant for a considerable time. When the spores do germinate each one gives rise to a tailed gelatinous organism which swims about in the moisture of the soil, till, perchance, it reaches a seedling in which it can take up its abode. Then the tail is dropped and the jelly-like fungus enters the root hair and passes from cell to cell, taking nutriment from its host meanwhile. Finally it settles down in one cell, and gives rise to the frothy organisms mentioned above. Growth of the cell wall takes place, and what was originally an ordinary cell becomes a giant cell.

Prevention.—All infected parts should be burned before the spores can escape into the soil. This disease never appears when the soil is sufficiently supplied with lime. The remedy is obvious. Rotation of crops will be necessary after an attack.

We observed that a fungoid disease on a leaf very quickly causes that organ to cease from manufacturing food, so that, if the organs containing reserve food are the ones we specially wish to cultivate till they attain perfection, such an attack on the leaves will leave ruined

or rather immature tubers or bulbs, as the case may be. This was exemplified in the Potato Disease—it occurs, too, in the

ONION MILDEW.—Unlike the fungus causing Potato Disease, the one that is responsible for Onion Mildew confines itself to the leaves only; nevertheless, it does a great amount of damage. About June and July some of the Onion leaves are marked with yellowish patches which rapidly become covered with a white growth having the appearance of hoar-frost. Next the white bloom changes colour and becomes pale violet; meanwhile the rest of the leaf has become affected, and its ultimate death and decay is simply a question of time. In all probability another crop of leaves will grow up to take the place of the dead ones. They, too, are certain to be attacked, and the ruin of the crop is then assured. The hoar-frost-like growth closely resembles the white growth encircling the decayed patches on the diseased Potato leaves. On the ends of the branches of each thread, spores are produced; they are carried by wind or rain to surrounding healthy leaves and germinate at once, with the result that the disease spreads in all directions. Were this all, treatment would be simplified, but, as the leaves decay, another kind of spore, a resting spore, is formed. The decayed leaves fall to the ground, and with them the resting spores. These spores remain dormant during the winter, but germinate in the following spring, and so the disease starts afresh.

Prevention.—All diseased leaves should be burned, for in them the resting spores remain and are capable of attacking another crop two years later. Rotation is recommended. Onions should not be grown in the same ground for three years after the appearance of this disease. Dusting the plants with a mixture of one part of powdered sulphur to two parts of powdered quicklime, using bellows for the operation, will prevent the spread of the fungus from affected to healthy leaves. Thorough and frequent spraying with Bordeaux mixture, from June to the end of the season, will achieve the same object. A very large number of cultivated plants are liable to attack by a group of parasites known as

RUST-FUNGI.—They are so called because in at least one stage of their existence they give the diseased plants the appearance of being covered with rust. Some common rusts are those of Wheat, Beet, Broad Bean, Asparagus, Chrysanthemum, Rose and Hollyhock; there are very many more, but no good purpose would be served in attempting to give anything approaching a complete list. The most important, because the most noxious, of the rusts, namely, Wheat Rust, does not concern us, so we will examine Rose Rust in some detail, and let it suffice for the whole group. Rose Rust appears in the early summer as orange powdery patches on leaves and stem. The patches on the leaves are at first minute, but as the summer grows older many of the patches fuse so that eventually the whole leaf may be covered by the fungus. Towards autumn the orange colour of the diseased parts gives place to black patches owing to the fact that

the orange-coloured summer spores have been supplanted by black winter or resting spores. The summer spores are carried from leaf to leaf by the wind and set up new disease areas wherever they alight. The winter spores fall to the ground on the dead leaves, and remain dormant during the winter. In the spring they germinate and form what are known as secondary spores. These secondary spores are wafted to young Rose leaves by the slightest breath of wind; there they germinate and form once more the orange-coloured summer spores. This rust fungus knows no other host than the Rose, but it is perhaps worth mentioning that the *V heat Rust* fungus lives part of its life on the leaves of the Barberry, a fact that makes it probable that many fungi now considered to be distinct will, as our knowledge of plant pathology progresses, be found to be merely stages in the life of a single fungus.

Prevention.—When the Rose Rust has attacked the wood, considerable wounds are likely to be made. These must be treated with equal parts of methylated spirit and water, and a careful watch should be kept on these spots, for other fungi are likely to take up their abode there. When the leaves are opening a liberal spraying with potassium sulphide solution should be given (1 oz. to 2½ gals. of water). This will prevent the secondary spores from germinating. If all leaves bearing winter spores are collected and burned, the disease will be eradicated, but it is almost impossible to be certain that none is overlooked. As this disease attacks wild Roses, any of these plants growing in the neighbourhood of Rose gardens should be scrutinised, and if found to be diseased, they should be destroyed.

MILDEW.—Another very destructive group of fungi is the one causing diseases known as mildews—true mildews, that is. Hops, Vines, Roses and Gooseberries are some of the plants whose mildews are widely known. The Gooseberry is especially unfortunate in that it is liable to attack by two distinct mildews, the European and the American. Let us take the Rose Mildew as one type, and try to see how and why this group of fungi is so much to be feared. Wherever Roses are grown the Rose Mildew is always present—unless, of course, means have been taken to kill it. In some seasons and on some Roses the fungus may never thrive; in other cases when the weather is suitable, or when the foliage is "soft," mildew may attain alarming proportions. On the young foliage, in spring, the mildew appears as a greyish white down, and rarely attracts much attention. But neglect is fatal, because, about midsummer, when new leaves and shoots are appearing, spores formed by the spring crop of the mildew will be blown to these young growths and affect them—affect not only the leaves, but the young shoots as well. This late summer mildew is slightly darker in colour than the early crop, because the winter resting fruits are being formed. These fruits are to be found on the young shoots, not on the leaves; from them, in spring, arise spores that germinate and give rise to the spring mildew. The so-called

spring and late summer mildews are one and the same thing in reality, and they are only so named because at these seasons they become more in evidence for the reason that they only thrive on the young parts of the roses.

Prevention.—All patches of mildew should be carefully scraped off the shoots and burned as early as possible before the winter fruits are formed. Spray frequently with potassium sulphide solution to which the whites of two eggs (to each gallon of solution) should be added. The spray should be very fine and misty to be effective. A solution of 1 part of sulphuric acid to 1,000 parts of water is also recommended by some Rose growers, while Cyllin soft soap is also found effectual.

APPLE SCAB.—A cursory glance at the Apples offered for sale in any market town in this country will reveal the unpleasant fact that a very large number are diseased, and a mental or actual comparison between these Apples and those imported from some of our colonies will not redound to the credit of the home-grown fruit. A very large proportion of home-grown Apples are scabby. Scabby, simply and solely because they have been neglected, for Apple Scab is easily controlled by efficient spraying with the correct fungicide. In all probability the grower will first become aware of an attack by noticing that his young fruits are dotted over with little black disease spots. As a matter of fact, the Apple Scab lives on the leaves before it makes its appearance on the fruit, and an examination of the upper surfaces of the leaves of a diseased tree will reveal the presence of many dark brown patches. On these patches millions of spores are formed; these are blown by the wind to the young fruit and, germinating, cause the black spots. Some spores, too, are carried to the young wood when, towards autumn, a winter resting stage of the fungus appears. In the spring this resting stage resumes activity, spores are formed in quantity, and the young leaves are attacked. This disease brings home to one very forcibly the advisability of spraying as a prevention of disease rather than as a cure. Spray early, and infection of the leaves will be prevented; neglect to spray, and the present year's crop, at any rate, will be ruined, for no amount of spraying will remove the black spots from the fruit.

Prevention.—Three sprayings with Bordeaux mixture should control this disease, provided that the Bordeaux mixture is freshly and correctly made and that the nozzle of the sprayer gives out a very fine, misty spray. The question of the right kind of spray is important. A fine mist will thoroughly moisten all the foliage; a coarse spray will allow the moisture to run into drops that will fall from the leaves without wetting them. The first spraying should take place just before the blossoms open; the leaves will then be unfolding. A second spraying should be given immediately after the blossom has fallen, and in cases of severe attack another spraying should follow three weeks later. If the young wood is badly attacked—its appearance when

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diseased varies with the variety of Apple—cut out as much as possible in pruning.

The number of plant diseases is only equalled by their insidiousness, and the wise gardener will never allow himself to lose sight of the fact that it is always far easier to prevent a plant disease than to cure or e. Efficient spraying will keep an orchard or garden free from all fungoid pests—a fact that is brought home to everyone who has had the pleasure of looking over an orchard in some county where periodical preventive spraying is enforced, or even a well-tended British nursery. It may appear that this point is somewhat laboured, but until the truth of it is taken to heart by gardeners generally, fungoid pests will remain as they are now, the greatest bugbear of all horticultural work.

A few general rules for dealing with fungoid plant diseases may not be out of place. Weeds should be rigorously banned, for many disease-forming fungi, when unable to find a suitable cultivated host, will thrive meanwhile on a more humble relative—the case of the "Rose rust" has been mentioned. Rotation of crops after a disease is always advisable, however slight the attack may have been; it might be more severe the next season. Different species should follow one another in the rotation. Do not grow Cabbages in ground from which you have just taken club-rooted Turnips.

Burn all refuse, diseased plants and portions of diseased plants. Some fungi can live, for a time at any rate, on decayed vegetable matter; others, again, have resting spores that are not killed by the fermentation set up in the rubbish heap.

If, perchance, you are careless enough not to act in the only really satisfactory way and to take precautions to prevent diseases arising, they are certain to appear sooner or later. Then you must act at once and remove all diseased parts, or even whole plants. The chances are that the disease will have become well established before it is observed. Give careful attention to cultivation, especially to drainage and ventilation. All fungi thrive in dark, damp, badly ventilated situations, and, also, a healthy well-grown plant is less likely to be attacked than a weak one.

Bordeaux Mixture, which has been recommended frequently, is prepared as follows: Dissolve 1 lb. of sulphate of copper (bluestone) in a little hot water; dissolve 1 lb. of quicklime in cold water. Pour these together when cool, and add 10 gals. of water. If 1 lb. of common treacle is dissolved with the lime, the mixture adheres better. Mix and keep in a wooden vessel.

CHAPTER XXIV

ORCHIDS FOR AMATEURS

ORCHIDS are regarded by many as the aristocrats of the flower world, and certainly in richness of colouring, but more particularly in the quaintly shaped blossoms of many of them, they are strikingly distinct from other flowers. There is a widespread idea that they are extremely expensive and impossible to grow unless exceptional care is taken and special glass-houses are built for them. This is by no means the case. Though some have realised, and, in fact, still realise, prices greatly in excess of those charged for other plants, many of the Orchids most easily grown and most beautiful can be obtained at a very moderate price.

The amateur wishing to grow these fascinating plants must in the first place decide upon the section or class he would prefer, for according to the temperature they need, Orchids are divided into three classes, namely, Cool, Intermediate and Hothouse kinds. Included in the first are the beautiful and popular *Odontoglossums*, in the second the large, gorgeously coloured *Cattleyas*, and in the third many Orchids of the tropical forests, including the Air Plants (*Aërides*), some of the *Cypripediums*, or Lady's Slipper Orchids, the Moth Orchids (*Phalænopsis*, and others). Most of the Orchids under cultivation grow wild, as epiphytes, on trees; that is to say, the roots do not derive nourishment from the ground, but partially from the vegetable debris that accumulates in the forks or on the branches of the trees, and partially from the moisture in the atmosphere, as well as that supplied directly by rains and mists. Most epiphytal Orchids are made secure in their elevated positions by long roots of a thong-like character, which attach themselves firmly to the bark of the supporting trees. For the maintenance of such roots under cultivation a good deal of atmospheric moisture is necessary, a fact that must not be forgotten by those taking up the cultivation of Orchids. A mass of soil around the roots is most injurious, yet the potting compost must be



ORCHIDS GROUPED IN THE WARM GREENHOUSE THE CHIEF FLOWERS SHOWN ARE DENDROBIUMS



made quite firm, otherwise, if the plants sway about at all they will not thrive. A notable feature of the flowers of many Orchids is that from their thick, waxlike texture they remain fresh and bright for a much longer period than the blossoms of most plants.

Potting and Potting Composts.—At one time it was the custom to pot nearly all Orchids in a mixture of peat and sphagnum moss, but of late years other materials have come into use, and generally with great advantage to the plants. Leafmould, from decayed oak leaves only, is now very frequently used, while the fibrous roots of the Royal Fern (*Osmunda regalis*) are largely employed in the place of peat. A good general compost suitable for most Orchids may be made up of two parts *Osmunda* fibre or fibrous peat, one part green sphagnum moss chopped fairly fine, and one part oak leafmould, charcoal broken fine, and silver sand. While this mixture will suit most kinds, no hard and fast rule can be laid down. For example, for most *Oncidiums* the amount of leafmould may with advantage be increased, while *Cymbidium*, *Calanthe*, and *Lycaste* require about one-half good yellow loam, and so do many of the *Cypripediums*. The free-growing kinds of *Cypripedium*, such as *insigne* and its many forms, thrive particularly well in soil consisting of half loam and half leafmould, with a little chopped sphagnum moss and charcoal, and crocks broken fine. For cutting up the moss, peat and *Osmunda* fibre, a pair of sheep shears is very convenient, or failing these a large pair of scissors will do.

When to Repot.—As Orchids make their growth and come into flower at different seasons of the year, it is evident that no definite rules can be laid down as to the time for their repotting. Several of the cool-house Orchids, *Odontoglossums* especially, much resent being disturbed at the roots during the summer months, hence the best time to repot them is in the spring or autumn. The roots are then active, and quickly take possession of the new compost. *Cattleyas*, *Lælias*, and their numerous hybrids, are best repotted when new roots begin to form at the base of the young growth. The best time to repot *Dendrobiums* is when the new shoots have started to grow. *Cypripediums* may be potted in spring, summer, and early autumn, but never when the plants are showing flower, the best time being soon after the flowers have faded. It may be pointed out that annual repotting is in the case of many Orchids by no means necessary—they

are often allowed to remain two years in the same pot. After that time, however, repotting is generally beneficial. When it is decided not to repot a plant this is often benefited by a top dressing. A little of the surface soil is removed, and perhaps two or three pieces of fibre that the roots have not penetrated. These can be replaced by others pressed in firmly, and the whole top-dressed with a little fresh compost.

How to Repot.—In potting or repotting Orchids, their epiphytal character must be borne in mind: they require more drainage than is needed by other plants grown in pots. For this reason they are often grown in deep flower pans, instead of flower pots, indeed, flower pans, often with holes at the side, are specially made for Orchids. This additional expense need not, however, be incurred. If an ordinary flower pot is used it should be perfectly clean, and be half filled with drainage material. Broken pieces of flower pot are most commonly used for drainage, and there is nothing better, providing they are clean and free from insects. When large flower pots are used a small pot placed, inverted, over the hole at the bottom, does away with the need for so many crocks. This may be surrounded with broken crocks and the drainage material made up to the required height with them. In potting, care should be taken that the compost is in a moderate state of moisture, as if too wet it presses together too firmly, whereas if dry, it is difficult to moisten afterwards. The plant intended to be potted is turned out of its pot and all broken crocks and any loose soil are taken away. Roots showing signs of decay may be cut off with a sharp knife, and a keen look out should be kept for slugs or insects, particularly woodlice, which are troublesome at times, and very fond of hiding in the drainage material. A layer of clean sphagnum moss is placed over the crocks in the new pot; then on this a little of the roughest of the potting compost. The plant is then placed in position and the soil worked all round carefully but firmly. The crown of the plant should be at such a height that the soil can be raised a little above the rim of the pot. After the potting is completed a few growing points of sphagnum moss may be dibbled on the surface, as in a moist atmosphere these will soon grow and form a green covering, which adds not only to the beauty of the plant but is also much appreciated by the young roots.

After potting such Orchids as *Dendrobiums* and *Cattleyas*, which are apt to sway about if moved, it is a good plan

to secure the principal shoots to a neat stake, as by so doing the young and delicate roots are not injured if the plant is shifted from one spot to another. An important matter in repotting Orchids is to guard against using pots that are too large, or the plants will assuredly fall into ill-health. Generally a pot one size larger is the best to choose, while in some cases when the loose soil is removed, it will be found that a larger pot is not required. After repotting, the plants are watered carefully until the roots take possession of the new soil, when an increased amount may be given. Some cultivators grow some of their Orchids in teak baskets, suspended from the roof, but they are often more difficult to manage than when grown in pots. It is frequently impossible to remove them from the basket without injuring the roots, while the watering is not always an easy matter. When the basket is small it can be taken down and soaked in a pail of water.

Management, Temperature, etc.—The temperature of the cool house may, without risk to the Orchids, be allowed to fall as low as 45° during cold nights in the winter; indeed, a minimum of 45° , rising to 55° or 60° in the daytime, is a suitable temperature. It is evident that to maintain this no great amount of fire heat is necessary, and this is as it should be, for overheated pipes are inimical to the welfare of cool-house Orchids. In summer the principal thing is to keep the temperature as low as possible, hence a free circulation of air and plenty of moisture combined with judicious shading are beneficial. At the same time the ventilation must not partake of a draughty nature, as it tends to set up too dry an atmosphere. The stages and paths may be freely moistened, and the plants lightly syringed two or three times a day if possible in hot weather. Syringing can be safely carried out from April to the end of September, but except in hot weather once a day is sufficient. The compost in the pots will also require to be kept thoroughly moist, but not sodden. Owing to the shading and syringing the compost about the roots does not dry as rapidly during the summer as one might expect, consequently over-watering must be guarded against. At the same time drought is very injurious. The most critical period is in early spring, when the sun sometimes shines brightly after a long period of dull weather. The plants are naturally weakened by the prolonged absence of sunshine, and the leaves are apt to be scorched. From this it is evident that whatever system of

shading is followed, it should be ready for use early in the season. Manure either in the potting compost or in liquid form should never be given to Orchids in general; a few are benefited by it, and these will be referred to in the tabulated list later on.

With Orchids growing in the intermediate or warm house, the principal difference in treatment concerns the temperature. In the winter the thermometer should range from 50° to 65° , with a corresponding rise as the days lengthen and the sun gains power. The watering and syringing should be carried out in much the same way as previously advised.

For the hothouse, a minimum winter temperature of 60° should be kept up, and this may be allowed to rise 10° or so in the daytime. Should the thermometer at any time fall unduly low, syringing is dispensed with until the usual temperature is reached, as plants, when dry, are less affected by extreme cold than if wet. For this reason watering should be sparingly given during very cold weather, but even then many Orchids resent being allowed to get too dry, particularly the *Odontoglossums*. The beginner in Orchid growing would do well to make a selection from the cool or intermediate house, not the hothouse kinds. With regard to the last-named, it may be pointed out that the temperature they need is just the same as that for many winter-flowering plants, so that if only a few Orchids are grown they may be associated together.

Shading.—As previously pointed out, shading is an important item in Orchid growing, not that the plants need to be heavily shaded, but harm is soon done by an excess of sunshine. This is more likely to happen when the plants are in full growth, for towards the end of summer and in early autumn, many Orchids are greatly benefited by exposure to the sun. This particularly applies to some of the *Cattleyas* and *Dendrobiums*. Various forms of shading are employed by different cultivators. Some paint over the glass. This is the simplest, but at the same time the least desirable method of shading, for it not only obstructs the light in dull weather, but if the cool house is so treated it gets too hot during bright sunshine. Blinds are preferable, and these are usually made of canvas and rolled up when not in use. Of late years, however, lath blinds, made to roll up, have become popular. They are more expensive than canvas, but very durable. If these blinds are let down during cold winter nights they help

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A BEAUTIFUL ORCHID, DENDROBIUM M. WARDIANUM.

to protect from frost. When permanent shading is applied a preparation known as "Summer Cloud," which can be obtained from any sundriesman, is the best.

Propagation.—Of late years Orchids have been raised in large numbers from seed, but this is a process requiring constant attention, as well as much patience. As numerous appliances are needed this can well be left to the professional. Many are, however, readily increased by division, particularly the *Cypripediums*, *Masdevallias*, and some *Odontoglossums*; in the case of *Cattleyas* a far greater risk attends the work. Many of the *Cypripediums*, when repotting is being done, can be divided as readily as a herbaceous plant. The roots are of a succulent nature, and care must be taken not to bruise them when division is being carried out.

Imported Orchids.—As many Orchids retain their vitality for a considerable time, especially those composed of bulb-like masses (technically termed pseudo-bulbs), they are imported in considerable numbers. They are usually received in the shape of rough masses, as torn from the trees on which they were growing. They are, from this cause, extremely awkward to pot in a proper manner, and it is often an advantage to divide them into two or more pieces instead of leaving the mass in its entirety. In any case, the first thing to do with imported Orchids is to cut away all decayed or dead portions with a sharp knife, and keep a look out for insect pests, which may give trouble later on, and are often imported with the Orchids. The plants are laid on the stage of the Orchid house and moistened occasionally, so that they gradually absorb the moisture and recover. In a fortnight or three weeks they may be potted, but before this takes place the plants should be again examined, as it may be necessary to cut away some portions that appeared sound when they were first looked over. The pots selected should be only just large enough to accommodate the plants. It is far better to wait until the small pot is filled with roots and then shift into a larger one than to put the plants in the larger pot at once. When imported plants are first potted they need watering with great care; in fact, if lightly syringed once or twice a day they will in this way obtain nearly all the moisture needed until the growth commences. In the case of unnamed imported plants the temperature must be chiefly determined by the district from which they were sent.

ORCHIDS FOR THE COOL HOUSE

Name	Colour of Flower	Time of Blooming	Height	General Remarks
<i>Ada aurantiaca</i> ..	Deep orange	Early spring	12 to 15 in.	Very striking by reason of its distinct colour
<i>Cattleya citrina</i> ..	Yellow	Spring and summer	Drooping	Needs to be wired on a block of wood with some sphagnum moss, and to be hung up in the house
<i>Calogyne cristata</i> ..	White, centre yellow	Winter and early spring	1 ft.	Roots very shallow; best grown in pans
<i>Cymbidium eburneum</i> ..	White, waxlike	Spring	2 ft.	Needs a compost of rough loam, peat, and sand
<i>Cymbidium lowianum</i> ..	Yellowish green, blotched crimson	Winter and spring	Long spikes, many flowers	Requires the same treatment as the last
<i>Cymbidium traceyanum</i> ..	Yellow, lined crimson	Summer and autumn	2 to 3 ft.	Individual flowers much larger than the preceding; needs same treatment
<i>Cypripedium insignis</i> ..	Yellowish green, brown and purple	Winter	1 ft. to 18 in.	Thrives equally well in intermediate house
<i>Cypripedium venustum</i> ..	Greenish white, purple, and yellow	Spring	9 to 10 in.	Has very pretty mottled leaves
<i>Cypripedium villosum</i> ..	Yellowish brown and purple	Winter and early spring	1 ft.	Flowers large, and as glossy as if varnished
<i>Dendrobium infundibulum</i> ..	White, orange throat	Spring	12 to 18 in.	Needs to be kept almost dry when growth is finished
<i>Disa grandiflora</i> ..	Scarlet	Summer	18 in. to 3 ft.	Must be kept regularly watered all the year round
<i>Epidendrum vitellinum</i> ..	Scarlet	Summer	1 ft.	Keep moderately dry in winter
<i>Laelia alba</i> ..	Whitish	Winter	3 ft.	Give plenty of air and moisture when growing
<i>Laelia anceps</i> ..	Purple and rose	Winter	3 ft.	Same treatment as the preceding
<i>Laelia autumnalis</i> ..	Rose and purple	Autumn	3 ft.	Must be well ripened towards end of summer
<i>Lycaste aromatica</i> ..	Golden yellow	Winter	6 in.	Water freely when growing, and at no time keep quite dry
<i>Lycaste Skinneri</i> ..	White to rose crimson	Winter and spring	18 in.	One of the most easily grown of all Orchids; needs same treatment as the preceding

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Must be well ripened towards end of summer
Water freely when growing, and at no time keep quite dry
One of the most easily grown of all Orchids; needs same treatment as the preceding

3 ft.
6 in.
18 in.

Autumn
Winter
Winter and spring

Golden yellow
White to rosy crimson

Lycaste aromatica
Lycaste Skinneri

Name	Colour of Flower	Time of Blooming	Height	General Remarks
Masdevallia amabilis ..	Rose, veined red	Summer	6 in.	The Masdevallias do not form pseudo bulbs and, consequently, they must be kept moist throughout the year. Masdevallia harr yana is a delightful and variable species, of which there are a great many recognised varieties. All are beautiful.
Masdevallia Davisi ..	Yellow	Spring and summer	1 ft.	
Masdevallia harr yana ..	Magenta, scarlet, purple and violet	Summer	18 in. to 2 ft.	
Masdevallia ignea ..	Scarlet, crimson	Summer	18 in. to 2 ft.	
Masdevallia tovarensis ..	White	Spring and summer	12 to 18 in.	At no season must the Odontoglossums be kept dry as some Orchids are, with the exception of citrosum, which should be watered when the flower spikes show in the spring, but not during winter.
Masdevallia veitchiana ..	Vermilion, flushed purple	Early winter	6 in.	
Odontoglossum Adrianæ ..	Yellow and reddish brown	Spring and summer	18 in.	
Odontoglossum andersonianum ..	Cream and brown	Spring and summer	1 ft.	
Odontoglossum Bicksonense ..	Yellow, brown and rose	Spring and summer	18 in. to 2 ft.	Of Odontoglossum crispum the varieties are numerous. This, also known as Odontoglossum Alexandre, has realised higher prices than any other Orchid, the varieties in which the flowers are spotted with crimson being the most valuable.
Odontoglossum Cervantesi ..	White and chocolate	Spring	3 ft.	
Odontoglossum citrosum ..	White, spotted	Spring	6 in.	
Odontoglossum citrosum ..	Light rose	Spring	2 to 3 ft.	
Odontoglossum crispum ..	White, more or less spotted	Early summer	pendulous	The flowers of all the Odontoglossums are very beautiful and last well in a cut state, so that they are much valued for buttonholes and similar purposes.
Odontoglossum Edwardi ..	White, more or less spotted	Various, usually spring	15 to 30 in.	
Odontoglossum gloriosum ..	Purple	Spring	3 to 4 ft.	
Odontoglossum grande ..	Yellow, spotted	Spring	1 to 2 ft.	
Odontoglossum Halli ..	Yellow, barred brown	Autumn	1 ft.	The Odontoglossums succeed best when the sphagnum moss is allowed to grow on the surface of the compost.
Odontoglossum Isaacii ..	Yellow, blotched chestnut	Spring	2 to 4 ft.	
Odontoglossum luteo-purpureum ..	Yellow and chocolate	Autumn	1 ft.	
Odontoglossum Pescatorei ..	Chestnut, marked yellow	Spring	2 ft.	
Odontoglossum pulchellum ..	White, sometimes blotched	Spring	18 in. to 3 ft.	
Odontoglossum Rossi ..	White	Spring	1 ft.	
	White, marked with green, brown and rose	Winter and early spring	6 in.	

Name	Colour of Flower	Time of Blooming	Height	General Remarks
<i>Odontoglossum triumphans</i> ..	Yellow, barred chestnut	Spring	18 in. to 3 ft.	As a rule the <i>Oncidiums</i> need to be kept somewhat drier after their growth is completed till the flower spikes appear when more water must be given. For these the moss should not be allowed to grow as freely as for <i>Odontoglossums</i>
<i>Odontoglossum Uro-Skinnei</i> ..	Greenish brown, rose and white	Spring	2 ft.	
<i>Oncidium cheriophorum</i> ..	Golden yellow	Autumn	6 in.	
<i>Oncidium concolor</i> ..	Pale yellow	Early summer	6 in.	
<i>Oncidium crispum</i> ..	Brown and yellow	Various	2 to 4 ft.	
<i>Oncidium Forbesi</i> ..	Chestnut, edged gold	Autumn	2 to 3 ft.	These are deciduous. Soon after flowering the bulbs should be repotted in peat, sphagnum moss, leaf mould, and sand. They will then make their growth, and in time go to rest. When in this state but little water should be given till the flower buds appear. Thrives best in a pan or basket, and hung up in cool house. Needs careful watering at all times. The flowers have a delicious fragrance
<i>Oncidium incurvum</i> ..	Rose and white	Autumn	12 to 15 in.	
<i>Oncidium marshallianum</i> ..	Yellow, marked brown	Early summer	3 to 6 ft.	
<i>Oncidium ornithorhynchum</i> ..	Rose lilac	Winter	1 to 2 ft.	
<i>Oncidium tigrinum</i> ..	Yellow, striped chestnut	Autumn and winter	2 to 4 ft.	
<i>Oncidium varicosum</i> ..	Yellow, reddish bars	Autumn	3 to 5 ft.	These are deciduous. Soon after flowering the bulbs should be repotted in peat, sphagnum moss, leaf mould, and sand. They will then make their growth, and in time go to rest. When in this state but little water should be given till the flower buds appear. Thrives best in a pan or basket, and hung up in cool house. Needs careful watering at all times. The flowers have a delicious fragrance
<i>Pleione humilis</i> ..	White, marked purple	Winter	6 in.	
<i>Pleione lagemaria</i> ..	Rose, lilac and purple	Winter	6 in.	
<i>Pleione precox</i> ..	Pink, rosy purple and yellow	Early winter	6 in.	
<i>Sophranitis grandiflora</i> ..	Scarlet	Winter	4 in.	
<i>Trichopilla fragrans</i> ..	White	Autumn	1 ft.	These, known as Fox Brush Orchids, should be potted in sphagnum moss, crocks, and charcoal, and be regularly watered
<i>Trichosma suavis</i> ..	White and crimson	Winter	9 in.	

ORCHIDS FOR THE INTERMEDIATE OR WARM HOUSE

Name	Colour of Flower	Time of Blooming	Height	General Remarks
<i>Erides affine</i> ..	Rose	Summer	1 ft. to 18 in.	These, known as Fox Brush Orchids, should be potted in sphagnum moss, crocks, and charcoal, and be regularly watered
<i>Erides Fieldingi</i> ..	White, mottled rose	Early Summer	2 to 3 ft.	

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These, known as Fox Brush Orchids, should be potted in sphagnum moss, crocks, and charcoal, and be regularly watered

1 ft. to 18 in.
2 to 3 ft.

Summer
Early Summer

Rose
White, mottled rose

Erises affinis
Erises Fieldingii

Name	Colour of Flower	Time of Blooming	Height	General Remarks
Anguloe Clowesi	Golden yellow	Spring	18 in.	A little fibrous loam may be mixed with the soil for these. Should be potted early, before growth recommences. Long pendulous spikes of flowers. Soon after flowering these go to rest, when they should be kept dry for a time. Then about midsummer, shake a mixture of loam, leaf mould, or peat, and sand, and keep warm and moist, giving a little manure water occasionally. From their varied season of flowering no hard and fast line can be laid down for the treatment of Cattleyas, but after growth is made they should be kept somewhat drier, but never parched up. Towards the end of the summer they are benefited by more sun and air than most Orchids require. The flowers of these are large and much used in a cut state for wreaths and similar purposes. They do not remain fresh as long as those of the <i>Oncotoglossum</i> .
Anguloe Ruckertii	Crimson	Summer	18 in.	
Cologne masangeana	Yellow and chocolate	Various	18 in.	
Calanthe vestita	Different varieties, various colours	Winter	2 to 2½ ft.	
Calanthe Veitchii	Rich rose	Winter	2 ft.	
Cattleya bicolor	Bronzy green and purple	Late summer	18 to 30 in.	
Cattleya Eldorado	Purple and orange	Early autumn	15 to 18 in.	
Cattleya gaskelliana	White, flushed pink	Late summer	1 to 2 ft.	
Cattleya labiata	Rose and purple	Autumn	1 to 2 ft.	
Cattleya Loddigesi	Lilac	Late summer	18 in. to 2 ft.	
Cattleya Mendellii	White, purple lip	Early summer	18 in. to 2 ft.	The Lady's Slipper, as the <i>Cypripediums</i> are termed, are an easily grown class of Orchids, with very striking flowers, showy than many others. They must be kept watered throughout the year, and the strong-growing kinds are benefited by a little weak manure water during the growing season.
Cattleya Mossii	Very variable	Summer	18 in. to 2 ft.	
Cattleya peruviana	Deep rose, crimson	Autumn	15 in. to 2 ft.	
Cattleya Schroderae	Light rose, orange and yellow	Spring	15 in. to 2 ft.	
Cattleya Skinneri	Light rose, orange throat	Spring and early summer	18 to 30 in.	
Cattleya Trianae	Rose purple	Winter	18 in. to 2 ft.	
Cattleya Warneri	Very variable, usually bluish, purple lip	Summer	15 in. to 2 ft.	
Cattleya Warszewiczii	Deep rose, crimson lip	Summer	2 to 3 ft.	
Cypripedium arthurianum	Rose and purple	Winter	18 in.	
Cypripedium aureum	Yellowish green, spotted purple	Winter	18 in.	
Cypripedium bellatulum	Greenish yellow	Summer	6 in.	Known also as <i>C. elegans</i>
Cypripedium calceolus	White, heavily spotted purple	Summer	18 in.	
Cypripedium Charlesworthii	White, shaded green striped brown	Spring	18 in.	
	Rose, purple, and brown	Autumn	1 ft.	The Lady's Slipper, as the <i>Cypripediums</i> are termed, are an easily grown class of Orchids, with very striking flowers, showy than many others. They must be kept watered throughout the year, and the strong-growing kinds are benefited by a little weak manure water during the growing season.

Name	Colour of Flower	Time of Blooming	Height	General Remarks
<i>Cypripedium fairleanum</i> ..	Creamy white, lined purple	Winter	15 in.	The individual flowers last a long time, and in some kinds, as, for instance, <i>lawrenceanum</i> , the leaves are very prettily marked
<i>Cypripedium insigne</i> ..	Various	"	1 ft. to 18 in.	
<i>Cypripedium lathamianum</i> ..	White, purple and brown	"	18 in.	
<i>Cypripedium lawrenceanum</i> ..	White, veined purple	Summer	18 in. to 2 ft.	
<i>Cypripedium leeanum</i> ..	White, purple, and green	Winter	15 to 18 in.	
<i>Cypripedium nitens</i> ..	Greenish white, spotted purple	"	18 in.	
<i>Cypripedium niveum</i> ..	White, with tiny purple dots	Summer	6 to 9 in.	
<i>Cypripedium specterianum</i> ..	White, purple, and brown	Winter	15 to 18 in.	
<i>Cypripedium Warneri</i> ..	White, flushed and striped purple	Various times	12 to 15 in.	
<i>Dendrobium aureum</i> ..	Amber and brown; very fragrant	Spring	1 ft. to 15 in.	The <i>Dendrobiums</i> require best and moisture when growing, a reasonable amount of sunshine and air later on in order to mature the growths, and then a period of rest under drier and cooler conditions
<i>Dendrobium crassinode</i> ..	White, purple and orange	"	12 to 18 in.	
<i>Dendrobium crepidatum</i> ..	White, pink and yellow	"	12 to 18 in.	
<i>Dendrobium densiflorum</i> ..	Orange ⁷⁶³⁷ et	"	12 to 15 in.	
<i>Dendrobium formosum</i> ..	Large white flowers marked orange	Autumn	12 to 18 in.	
<i>Dendrobium jamesianum</i> ..	White, marked deep red	Spring and summer	12 to 18 in.	
<i>Dendrobium wardianum</i> ..	White, purple, and yellow	Spring	3 ft.	
<i>Laelia anceps</i> ..	Purple and rose	Winter	3 ft.	
<i>Laelia autumnalis</i> ..	Rose and purple	Autumn	3 ft.	
<i>Laelia digbyana</i> ..	Cinnabar red	Spring	12 to 24 in.	
<i>Brassavola digbyana</i> ..	Creamy white	Various	15 in.	May also, as previously mentioned, be grown in cool house The <i>Laelias</i> are nearly related to the <i>Cattleyas</i> , to the flowers of which most of them bear a considerable resemblance, and they need much the same treatment
<i>Laelia Ferrisii</i> ..	Crimson, purple and white	Early winter	15 to 18 in.	

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..	Purple and rose	3 ft.	May also, in cool house
..	Rose and purple	3 ft.	
..	Rose and purple	12 to 24 in.	The Lælies are nearly related to the
..	Cinnabar red	15 in.	Cattleyas, to the flowers of which
..	Creamy white	15 to 18 in.	most of them bear a considerable
..	Brasavola digbyana (also known as		resemblance, and they need much the
..	Brasavola digbyana)		same treatment
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Name	Colour of Flower	Time of Blooming	Height	General Remarks
<i>Laelia pumila</i> ..	Purple, yellow, and crimson	Autumn	6 in.	The <i>Miltonias</i> are a very pretty class and one, namely, <i>Miltonia vexillaria</i> , is one of the most popular Orchids for show purposes
<i>Laelia purpurata</i> ..	Various shades of rose and purple	Spring and early summer	2 to 3 ft.	
<i>Laelia tenebrosa</i> ..	Reddish brown	Early summer	2 to 3 ft.	
<i>Miltonia Clowei</i> ..	Chestnut brown, and purple	Autumn	18 in.	
<i>Miltonia spectabilis</i> ..	White and rose	Summer	18 in.	The <i>Oncidium</i> s selected for the cool house will also succeed in an intermediate temperature
<i>Miltonia vexillaria</i> (also known as <i>Oncostegiosium vexillarium</i>)	Various shades of purple creamy white and deep lilac rose	Spring and summer	15 to 18 in.	
<i>Oncidium licallosum</i> ..	Yellow	Winter	18 in.	
<i>Oncidium flexuosum</i> ..	Yellow and brown	Various	2 to 3 ft.	
<i>Oncidium phymatocentrum</i> ..	White, spotted with reddish brown	Summer	3 to 4 ft.	Very distinct and showy A terrestrial Orchid; needs a mixture of loam in its compost Pretty, free-flowering Orchids that need to be carefully watered at all seasons
<i>Oncidium sarcoodes</i> ..	Chestnut and yellow	Early summer	3 to 5 ft.	
<i>Renanthera imschrootiana</i> ..	Vermilion	Spring	18 to 24 in.	
<i>Sobralia macrantha</i> ..	Crimson, purple and yellow	Summer	3 to 6 ft.	
<i>Trichopilia coccinea</i> ..	Crimson	Early summer	1 ft.	The <i>Vandas</i> should be potted in sphagnum moss, crocks, and charcoal, and must be regularly watered throughout the year These are shade-loving plants, and need to be freely watered at all seasons
<i>Trichopilia suaveas</i> ..	Creamy white, spotted rose	Spring	1 ft.	
<i>Trichopilia tortilis</i> ..	Pale rose, edged greenish yellow	Various	1 ft.	
<i>Vanda amesiana</i> ..	White and purple	Early summer	18 in.	
<i>Vanda corulea</i> ..	Light blue	Autumn	1 to 3 ft.	
<i>Vanda kimballiana</i> ..	White and purple	"	12 in.	
<i>Zygopetalum crinitum</i> ..	White, striped blue	Summer	18 in. to 2 ft.	
<i>Zygopetalum Mackayi</i>	Yellowish, blotched purple	Autumn and winter	18 to 30 in.	

ORCHIDS FOR THE STOVE OR HOTHOUSE

Name	Colour of Flower	Time of Blooming	Height	Culture Remarks
<i>Ardis crassifolium</i> ..	Rosy purple	Summer	18 in.	Drying spikes of bright coloured blossoms, equidistant as for the intermediate kinds After a compost made up of three parts sphagnum to one of peat, and must be regularly watered; grow in peat, loam, and sand Do not hang up near the glass and never allowed to get dry One of the most beautiful of all Cattleyas Needs the same treatment as the intermediate house kinds These Dendrobiums need the same kind of treatment as the intermediate house kinds previously mentioned. Most of them do well either in suspended pans or baskets, or tied erect to stakes
<i>Ardis crispum</i> ..	White, tipped rose	"	2 to 5 ft.	
<i>Ardis odoratum</i> ..	White, blotched magenta	"	2 to 4 ft.	
<i>Angraecum sanderianum</i> ..	Pure white, drooping spikes	"	1 ft.	
<i>Angraecum sesquipedale</i> ..	White, very large	Winter	2 to 3 ft.	
<i>Burlingtonia fragrans</i> ..	White	Spring	1 ft.	
<i>Cattleya dowiana</i> ..	Yellow, crimson purple lip	Late summer and autumn	2 to 3 ft.	
<i>Cypripedium chamberlainianum</i> ..	Yellowish white	Various	18 in.	
<i>Cypripedium Curtisii</i> ..	Green, and rose purple	Spring and summer	18 in.	
<i>Cypripedium javanicum</i> ..	Green, white, and brown	Various	18 in.	
<i>Cypripedium superbiens</i> ..	Purple, white, and green	Summer	15 in.	
<i>Dendrobium Bensonsii</i> ..	Green, brown, and purple	Spring and summer	18 to 24 in.	Of quite a climbing habit of growth Give these <i>Oncidium</i>s much the same treatment as the intermediate kinds
<i>Dendrobium Deard</i> ..	White, orange, and maroon spots	Summer	1 to 2 ft.	
<i>Dendrobium devonianum</i> ..	White	Spring	2 to 3 ft.	
<i>Dendrobium nobile</i> ..	Creamy white, orange and purple	Winter and early spring	1 to 2 ft.	
<i>Dendrobium Phalanopsis</i> ..	White, purple, crimson	Autumn	18 in. to 2 ft.	
<i>Dendrobium Pierardii</i> ..	Rosy purple	Winter and spring	18 in. to 3 ft.	
<i>Dendrobium primulinum</i> ..	Bluish white and yellow	"	12 to 18 in.	
<i>Dendrobium thyrsiflorum</i> ..	Rose and primrose	Spring	18 to 30 in.	
<i>Dendrobium thyrsiflorum</i> ..	Orange yellow	Spring	Long	
<i>Oncidium ampliatum</i> ..	Orange scarlet	Spring	2 to 4 ft.	
<i>Oncidium ampliatum</i> ..	Yellow, blotched chestnut	Spring		

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Of quite a climbing habit of growth
Give these *Oncidium* much the same
treatment as the intermediate kinds

12 to 18 in.
18 to 30 in.
Long
2 to 4 ft.

Spring
Various
Spring

Rose and primrose
yellow
Orange yellow
Scarlet
Yellow, blotched
chestnut

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Dendrobium primulinum
Dendrobium thyrsiflorum
Epidendrum radicans
Oncidium ampliatum

Names	Colors of Flower	Time of Blooming	Height	General Remarks
<i>Oncidium kramerianum</i> ..	Reddish brown and yellow	Various	2 to 3 ft.	
<i>Oncidium lanceanum</i> ..	Yellow and rose purple	Summer	18 to 30 in.	
<i>Oncidium lucidum</i> ..	Yellowish green and purple	"	3 to 6 ft.	
<i>Oncidium Papilio</i> ..	Red and yellow	Various	2 to 3 ft.	<i>Oncidium Papilio</i> is the Butterfly Orchid of the West Indies
<i>Phajus grandifolius</i> ..	Yellow, brown, white and purple	Spring	3 to 4 ft.	Terrestrial Orchids which need a compost made up of loam, peat, and sand
<i>Phajus Wallichii</i> ..	Buff, yellow and red	Winter and spring	3 to 4 ft.	
<i>Phalaenopsis anabilis</i> ..	White	Winter	2 to 3 ft.	Best grown in baskets or pans in crocks and moss, and given plenty of water and a moist atmosphere
<i>Phalaenopsis rinvestadana</i> ..	"	Spring and early summer	2 to 3 ft.	
<i>Phalaenopsis Emeralds</i> ..	Rich purple	Late summer	2 ft.	
<i>Phalaenopsis schilleriana</i> ..	Rose	Spring	2 ft.	
<i>Platyphragma filiforme</i> ..	Pale yellow	Summer	1 ft.	Must not be allowed to get dry at any time
<i>Remanthera coccinea</i> ..	Scarlet	Various	3 to 6 in.	Quite a climber
<i>Saccolabium aspidulaceum</i> ..	Carmine rose	Summer	1 ft.	Needs the same treatment as the <i>Arides</i>
<i>Saccolabium bellinum</i> ..	Yellow and purple	Spring	6 in.	
<i>Saccolabium curvifolium</i> ..	Reddish	Summer	1 ft.	
<i>Succolabium giganteum</i> ..	White spotted purple	Various	18 in.	
<i>Thunia alba</i> ..	White, streaked purple	Summer	2 to 4 ft.	
<i>Thunia Benavente</i> ..	Purple	"	2 ft.	
<i>Thunia Marshallii</i> ..	White, veined orange	"	2 to 3 ft.	The <i>Thunias</i> are terrestrial Orchids, and after flowering the plants should be kept cool and dry till the spring, when they must be potted in loam, peat, and sand, and be well watered
<i>Vanda Bensoni</i> ..	Yellowish green and violet brown	Spring	1 ft. to 18 in.	The <i>Vandas</i> must be potted in a mixture of sphagnum moss, crocks, and charcoal and be watered at all seasons
<i>Vanda Roxburghi</i> ..	Green, brown and purple	Summer	18 in.	
<i>Vanda suavis</i> ..	White, marked purple	Various	2 to 5 ft.	
<i>Vanda teres</i> ..	Orange, red and rose	Spring	2 to 6 ft.	
<i>Vanda tricolor</i> ..	White and magenta purple	Various	2 to 3 ft.	

CHAPTER XXV.

BEAUTIFUL EVERGREEN AND LEAF-LOSING FLOWERING SHRUBS

ABELIA.—Those who have a warm wall that is not wholly covered might do worse than plant one or two of the Abelias, for their small and, in some cases, fragrant flowers come in early summer or late spring before the garden has really got into its stride. I am afraid this is the best recommendation I can offer, since except in the warm and sheltered gardens of the south-west they are not hardy enough for the open garden. The two most generally grown are triflora with pink, sweet-scented flowers, and floribunda, having rose-purple blooms, and, a point in its favour, evergreen leaves. Chinensis, an evergreen, with pinkish flowers, is also worthy of notice. The flowers are produced on the old shoots so that the management of Abelia consists in occasionally cutting out a few growths that have flowered and taking care of the young growths, and training them to the wall in place of the older shoots cut out.

ACER (Maple).—Among the Acers are some handsome trees and shrubs that are of great value to the gardener. Acer Pseudo-platanus is the Sycamore. The variegated form of Acer Negundo is a favourite tree, and its green and white leafage is familiar in many a shrubbery. It reaches a height of about 15 feet, and when grouped, not dotted about, it adds much to the gaiety of the garden. In common with all other Acers it loses its leaves in winter. This attractive tree has the habit, common to all trees and plants of variegated leafage, of producing green branches sometimes, and if these appear they should be cut out without delay. They are usually stronger-growing than the branches with coloured leafage, and in time, if left alone, will transform the tree from a variegated into a green-leaved specimen. Acer Ginnala is a small growing sort, remarkable for its richly coloured leafage in autumn. This characteristic is common to other Maples, particularly to the varieties of japonicum, palmatum, and others. Some that are particularly fine in autumn are rubrum and its variety sanguineum and saccharinum. The most generally useful of the Maples for garden decoration are the Japanese Maples and their varieties. These are especially charming in spring when the young growth makes its appearance and also when the leaves take on their autumn tints. Acers palmatum and japonicum and varieties are chiefly grown; the leaves are pretty, and some of the varieties, notably purpureum, variegatum and atropurpureum, are finely coloured. The Norway Maple is a widely planted tree; it is of quick growth and has hand-

some leaves, which, in common with those of all Maples, are deeply lobed or divided.

AILANTUS (*Tree of Heaven*).—This is a Chinese tree, and we are to suppose that its grandiloquent popular name was given by the Chinese. Its chief use to gardeners is in the summer garden, where it is often employed in "subtropical bedding." When grown naturally it reaches a height of 70 feet, but the flower gardener obtains young plants and restricts them to a single stem. The same specimen is made to do duty for several years by cutting down the stem each spring, for it is the young growth that is valued. The long, many-lobed leaves are very handsome.

ALMOND (*Prunus Amygdalus*).—This is referred to under the heading of *Prunus*.

AMELANCHIER (*Snowy Mespilus*).—This is one of the most delightful of all spring-flowering shrubs. In April it is smothered in white blossom, and in autumn the leaves take on most brilliant tints. It makes a symmetrical, rounded bush, eventually reaching a height of 20 feet or more. The two best sorts are *canadensis* and *vulgaris*, and both flower in April. They are happy in light soil.

ANDROMEDA.—This is a dainty evergreen shrub, with bunches of pretty pink flowers in early summer, but it needs a bed of soil consisting chiefly of peat, and for this reason is only to be recommended to those who are prepared to take more than ordinary care. Other allied sorts that were formerly known as *Andromeda*, but are now classed as *Pieris*, may very well be considered here. *Floribunda* and *japonica* both with evergreen leaves and white flowers are the chief of these. They are taller-growing than the true *Andromedas* and less fastidious, and more generally useful to the gardener. *Floribunda* comes into bloom as early as April.

ARALIA.—There are two hardy *Aralias* commonly grown, and both are handsome and distinguished shrubs or small trees. They have large, deeply divided leaves, and the effect of a grown plant is most ornamental. *Spinosa* has stems covered with formidable spines, but this advantage is compensated for by the fine bunches of creamy-coloured flowers that are produced in late summer. The other kind, *chinensis*, is grown only for the beauty of its leaves. For this reason it should be the grower's aim to force the plant to make strong growth, so that fine leaves may result. This is accomplished by cutting back the shoots in spring in the way advised for the *Ailantus*. The handsome evergreen *Aralia Sieboldi*, a favourite room plant, is hardy in mild districts.

ARBUTUS UNEDO (*Strawberry Tree*).—If this were of undoubted hardiness, which, unfortunately, it is not, one would more often find it planted in gardens. It is an attractive bush, and when established bears pinkish flowers in autumn, which are succeeded by scarlet fruits the next summer, more or less resembling Strawberries, hence

the popular name. In a sheltered position in light soil at Kew, the Strawberry Tree has reached a height of 15 feet; it is hardy as far north as Ipswich.

AUCUBA.—Perhaps the less I say of the Aucuba the better, for is it not already planted in at least every other garden one sees? It has been so often wrongly used that now it is classed as plebeian. Yet the Aucuba has its good points. It is evergreen, it thrives in the shade, and the plants have brightly coloured berries. Surely sufficient recommendation. As everyone knows, there are handsome variegated varieties, but I am not sure that they are so attractive as the green-leaved sort. At any rate, it is much easier to spoil a garden with the former than the latter. Plants with variegated leaves need carefully disposing. They should be grouped and not dotted about. Those who wish to see berries on their plants need to know that the Aucuba is dioecious, that is to say, that female flowers are on one plant and male flowers on the other. It is necessary to have plants of each sex, and the surest way to ensure a display of berries is, when the plants are in bloom, to scatter the pollen from the male flowers upon the female flowers. The Aucuba seems happy in any soil, and thrives even in town gardens.

AZALEAS.—These plants are often spoken of as Ghent Azaleas on account of many thousands of plants being grown in the neighbourhood of Ghent. Most of the plants in cultivation are hybrids, having arisen by the crossing of various American species and to some extent by the use of the Chinese *molle*, or correctly *Rhododendron sinense*, as a parent. These varieties present a very wide range of colour, from white to deep pink and red, and from yellow to orange scarlet, whilst they are very fragrant. The different shades of colour blend so well together that it is rarely that a discordant note is struck. They are extremely useful for massing, whilst they are also valuable for groups in the shrubbery. In autumn the leaves turn to brilliant shades of colour previous to falling, which give the plants a second period of beauty. The flowers are at their best during late May and June. As in the case of the evergreen *Rhododendrons*, they require little pruning, but are improved by the removal of the flower heads as soon as the flowers have fallen.

Original species of *Rhododendron* which come true from seed may be raised from seeds sown on the surface of peaty soil in pans or pots under glass, but the numerous varieties must be increased by layering or by grafting. A few of the small-leaved kinds and some of the Azalea section may be increased by means of cuttings of half-ripe wood in July and August. These must be inserted firmly in sandy peat, and be stood indoors in a close propagating case until rooted. Grafting is performed on stocks established in pots, the method known as saddle-grafting being employed. The work is done during late winter and early spring in a warm and close propagating house. Layering may be performed during autumn, winter, or spring.

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A DELIGHTFUL BLUE-FLOWERED WALL PLANT (CEANOTHUS PAPILLOSUS).

It consists of pegging the branches down into sandy soil. They are sometimes slit previous to being pegged into position.

AZARA MICROPHYLLA.—This is a charming evergreen shrub with small leaves and creamy flowers that open in summer. In all except warm gardens it is best to plant the Azara against a wall, one having a west aspect suits well; but in gardens south of the Thames it makes a pretty bush. The flowers have no decorative value, owing to their being so small, but as an elegant evergreen the Azara is worthy of extended planting.

BERBERIS (*Barberry*).—The various Barberries are among the most useful of all flowering shrubs. Some are evergreen, others are leaf-losing. The most valuable among the evergreen sorts are, *Darwini*, with orange yellow flowers, *stenophylla*, with deep yellow flowers, and *Aquifolium*, the common Mahonia, the light yellow blooms of which are familiar. All these flower in March and April, and good bushes are very handsome. They have the merit of thriving well in ordinary soil, and in almost any position. The Mahonia is, of course, one of the best of all plants for shady places. This has large handsome leaves, while *Darwini* and *stenophylla* have small ones. One of the best of the leaf-losing sorts is the common Barberry (*vulgaris*); its chief value lies in its bunches of orange red fruits in autumn, which render a bush an object of great beauty. Siebold's Barberry (*Sieboldi*) is remarkable for the rich colour shades of its leaves in autumn and the same value attaches to *concinna*, also leaf-losing. I must not forget to mention, what, however, probably everyone knows, that the Mahonia has in autumn bunches of purple fruits and beautifully tinted leaves.

BOX (*Buxus*).—It is almost superfluous to devote a paragraph to the Box, but I do so to call attention to several varieties that are not commonly grown. Everywhere the Box is seen, it is the common green-leaved sort that meets the eye. One with silver variegation, *argentea*, another with golden variegated leaves, *aurea maculata*, are very pretty, and well worth the attention of the amateur. The variety that is used for Box edging in the kitchen garden is called *suffruticosa*, while the type, *sempervirens*, may be grown as a hedge.

BUDDLEIA.—The most familiar of the Buddleias is the Orange Ball tree, *globosa*, which bears deep yellow, globular blossoms in summer. It is of rather doubtful hardiness, and is seen at its best in gardens on the south coast, where it grows into a big bush, and when in bloom is most attractive. In Sussex seacoast gardens there are some especially fine plants. The greyish leaves, too, are handsome. Another very fine Buddleia is called *variabilis veitchiana*, as hardy as *globosa*. In summer the purplish flowers are produced towards the ends of the shoots in large, spreading bunches or panicles. As the plants grow older they are liable to get bare in the centre. This is something of a disadvantage, but it may be remedied by hard pruning. Unless the shoots are pruned back hard every spring the plants soon get bare in the centre and the flower bunches are poor.

CALLUNA (*Ling*).—This is quite the most accommodating of the many Heaths, as, indeed, it should be, seeing that it grows wild in great abundance all over the country. It is an admirable plant for gardens with poor soil, and grows where apparently there is little to sustain the roots. Although such a common plant, it has several varieties which have variously coloured flowers. Those known as Serlei, white, and Alporti, reddish, are the best. One called aurea has yellow leaves.

CATALPA BIGNONIODES (*Bean Tree*).—This is a particularly handsome leaf-losing tree, which in summer bears bunches of white flowers that are spotted with purple and yellow. It thrives admirably in towns, and it may be worth mentioning that there is a fine specimen in the gardens on the Thames Embankment that blooms well every year. Only when well established does the Catalpa flower freely, but a variety called aurea, having yellow leaves, shows its beauty even in small trees.

CEANOTHUS.—The several kinds of Ceanothus are the finest of blue-flowered shrubs, and may be grown on walls or as bushes in the open. They all like a warm, well drained soil, and are especially well suited to gardens with light soil, if during summer the plants are mulched with rotted manure. Of those that make beautiful wall plants are papillosus, thyrsiflorus, and rigidus. They reach a height of 10 feet or more, and therefore need a high wall, one that faces south or west suiting them best. Those that may be grown as bushes, at least in southern gardens, are americanus, veitchianus, and azureus. There are now many fine garden varieties which seem to be hardier than the types from which they were raised. One of the finest of all is Gloire de Versailles, with blue flowers. If cut hard back each spring this produces long shoots that are smothered in blossom in summer. Other fine varieties are: Perle Rose, rose coloured; Arnoldi, pale blue; Indigo, blue; Marie Simon, rose; Ceres, lilac; and Bijou, blue. All these garden varieties make admirable lawn beds, and need to be hard pruned each spring so that they make strong growth. They continue in bloom until autumn and are well worth growing.

CERCIS SILIQUASTRUM (*Judas Tree*).—This is a pretty spring-flowering, leaf-losing tree; the blossoms are rose purple. It thrives without trouble in any ordinary soil, and is worth planting in the shrubbery or on the lawn.

CHIMONANTHUS (*Winter Sweet*).—One of the most welcome of all shrubs, since it blooms in mid-winter if grown on a warm wall where it is best suited. The creamy coloured blossoms are not in themselves particularly attractive, but they are very sweetly scented, and if the little sprays are gathered and placed in shallow bowls filled with sand they fill the room with fragrance. There is a variety called grandiflora with larger flowers. Pruning is carried out as soon as the blooms are over, and consists in cutting back to within two buds of their base the little side growths upon which the blooms were borne. Often

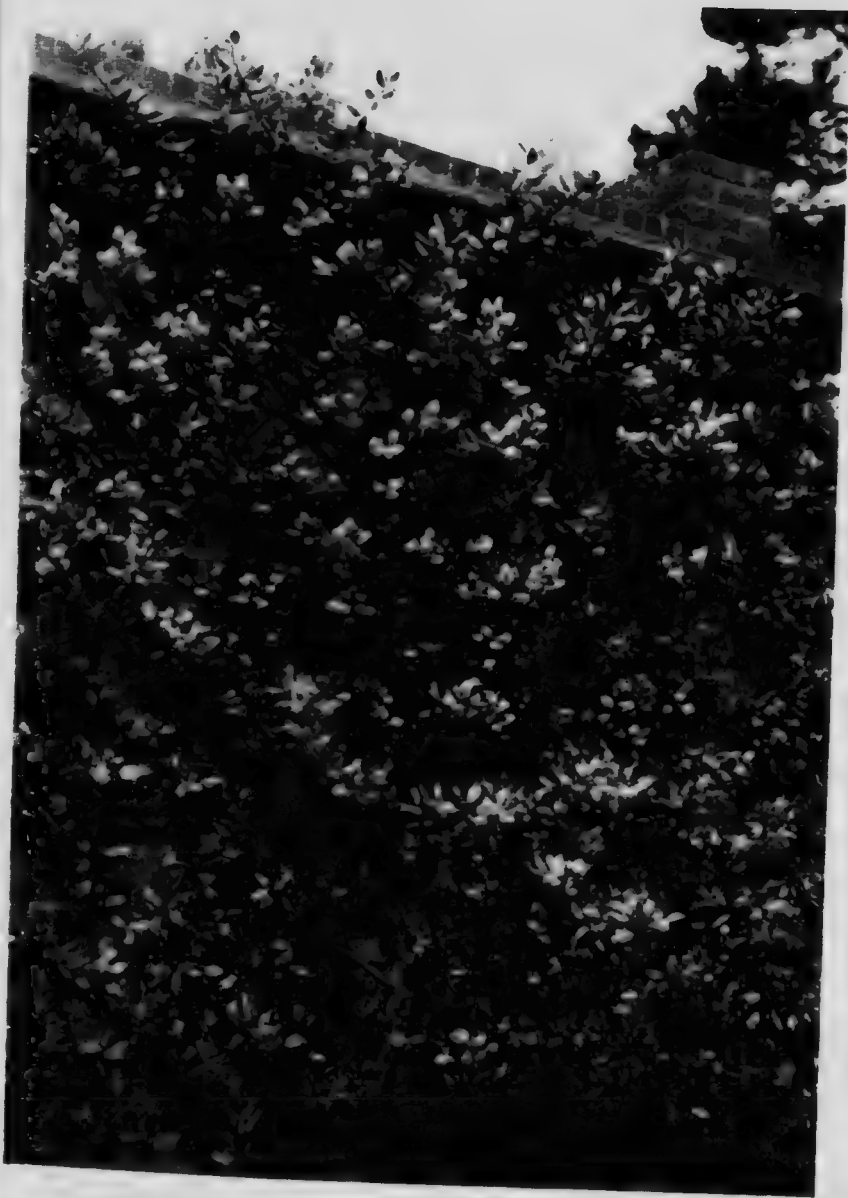
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CRANOTHUS VELUTINUS ON A WALL FACING SOUTH-EAST.

when the plant is put against a warm wall it bears in summer large, curious fruits.

CHOISYA TERNATA (*Mexican Orange Blossom*).—A very beautiful evergreen shrub, which in early summer is smothered in white fragrant flowers. In southern gardens it thrives in the open as a bush, but in gardens farther north needs the protection of a wall. It is a plant that everyone should grow, for even when not in bloom it is attractive by reason of its shining green leaves.

CISTUS (*Rock Rose*).—The Cistuses are invaluable plants for light soils and southern gardens. On cold, heavy land in midland and northern gardens they are useless, since they get killed in winter. They need, too, a sunny spot. There, in warm, well-drained soil, they are happy enough, and in summer bear their large showy flowers very freely. Even the southern gardener must expect to lose some of his plants in a severe winter, for they cannot be considered really hardy, though usually in such positions and soil as I have named they survive the winter. The most useful of all, since the hardiest, is the laurel-leaved sort (*laurifolius*), with large white flowers. This makes a big bush 6 feet or more high, and although the chief flowering time is in early summer, flowers may often be found until late in the autumn. Others are *crispus*, purple, only some 2 feet high, *monspe-liensis*, white, about 3 feet high, and *ladaniferus*, white, 2 feet high. Owing to the doubtful hardiness of all except *laurifolius*, it is usual to insert cuttings each autumn, keeping them in a cold frame throughout the winter and planting out in spring to make up for possible losses.

CLEMATIS.—There are many beautiful Clematises, but the average garden contains very few of them. The best way to arrive at a just consideration of this large family is to take the five chief groups into which Clematis is divided. There are many varieties in each class, and they are pruned differently. It is thus important that the grower should take note of the class or type to which the varieties in his collection belong. Probably the chief favourites among the Clematis are found in the Jackmani class. These bear the flowers on the fresh green growth, the shoots of the current year. Pruning is carried out in spring, and consists in cutting all growths down to within about 12 inches or 18 inches of the ground. Thus are the plants forced to make vigorous shoots, and the finer the growth the better will be the flowers. Some of the best sorts of the Jackmani type are: the common purple Jackmani, Jackmani rubra, Jackmani superba, deep purple, Madame Edouard André, reddish, Gipsy Queen, purple, Star of India, violet. Next in importance come the lanuginosa and patens types. The flowers of the lanuginosa varieties are borne on the fresh summer growth as with the Jackmani sorts; the flowers are larger, but they do not appear quite so freely as on the latter. The pruning is done in February, and all the growths are cut down about half-way. Marcel Moser, reddish mauve with broad bands of

colour down the centre of the petals, Beauty of Worcester, bluish, Fairy Queen, pale pink, Mrs. George Jackman, white, Nellie Moser, bluish with deeper coloured bands, Sensation, mauve, are some of the best varieties. Clematises of the florida and patens groups bear their flowers on the older growths, and different pruning is therefore necessary. All the grower need concern himself about is to cut out a few of the older shoots, when and only when they become crowded, so that the remaining shoots may have every chance of being well exposed to air and sunshine. Pruning is carried out as soon as the chief flowers are over, which is towards the end of June. They are at their best in early summer. Some of the finest varieties in the patens class are Lady Londesborough, grey, The Queen, mauve, Nellie Moser, bluish, with bands of deeper colouring, Miss Bateman, white, Fair Rosamund, white, and Albert Victor, lavender. There are several beautiful double sorts belonging to the florida section, such, for instance, as Duchess of Edinburgh, white, Lucy Lemoine, white, and Belle of Woking, grey. Single-flowered Clematises of this type are Countess Lovelace, lilac, John Gould Veitch, lavender, and Venus Victrix, lavender. The Clematises of the viticella section—the last to notice—bloom like the Jackmani varieties, in late summer and autumn, and are pruned in spring, the growths being cut to within 12 inches or 18 inches of the ground. One of the finest varieties of this type is Thomas Moore, violet. Others are Lady Bovil, blue, Madame Thibaut, lilac, and venosa.

There are several splendid Clematises among the species or wild types. These strong-growing Clematises include, for instance, The Old Man's Beard or Traveller's Joy (*Clematis Vitalba*), which is a rampant climber that bears cream-coloured flowers in summer, and in autumn fruits, having a silky covering, which makes it almost as attractive as when in bloom. This is a native plant and is admirable for planting where a quick-growing climber is needed. It covers a fence beautifully, its slender shoots drooping and covering the support most gracefully. *Clematis Flammula* has creamy white flowers and blooms in late summer, in August. It is also a rampant grower. The Mountain Clematis (*montana*) is a lovely white-flowered plant that blooms in May, the blossoms are large and are produced most freely. This, too, is a slender, free-growing climber often used for covering pergolas, or for training against a house wall. The new variety *rubens* is very attractive. But the Traveller's Joy and Virgin's Bower are perhaps seen at their best when allowed to ramble over rough poles. These they soon smother with leaves and flowers. Some of the garden varieties of *Clematis* are sometimes difficult to establish. But there is usually no trouble if the soil is previously well dug; if heavy or clayey, mix in lime rubble, sand and a little leaf-soil. Plant in March; shade the roots and lower parts of the stems. The rambling sorts thrive in any soil, and may be planted in autumn.

CLETHRA.—Those who care for a shrub that bears fragrant white flowers in August might do worse than plant a few bushes of *Clethra*.

One called *acuminata* grows into a big bush, but *alnifolia* that blooms rather later only grows 2 feet or 3 feet high. They belong to the Heath family, and therefore like a soil with which peat has been mixed.

COLUTEA ARBORESCENS (*Bladder Senna*).—A striking, strong-growing shrub that bears in early summer yellow, pea-shaped flowers that are followed by bladder-like fruits. It is easily accommodated, and ordinary soil suits it.

CORNUS (*Dogwood*).—The Cornelian Cherry (*Cornus Mas*) is a leaf-losing shrub that blooms quite early in the year, in February and March, then the shoots are covered with little yellow flowers. These are too small to be really showy, but they come in such profusion as to make quite a good display. The small, red fruits that follow the flower display add to its attractiveness later on. Some of the Dogwoods have richly coloured bark, and if pruned hard back in spring the young growths become splendidly coloured, and when leafless are most attractive. They are often, when so grown, planted by the waterside, and the brightly coloured stems reflected on the water form a splendid and uncommon feature in the garden in winter. The best for this purpose are the following: *Cornus alba*, red-stemmed, *stolonifera*, red-stemmed, and *flaviramea*, yellow-stemmed. A favourite variety of *Cornus alba* is *Spæthi*, which has handsome leaves marked with cream and yellow. *Sibirica variegata* has attractive green and white leaves. All those with richly coloured stems are useful for small gardens if pruned hard back each autumn, so as to induce the upgrowth of strong young shoots.

CORYLUS (*Nut*).—The only reason I mention this is that I may draw the reader's attention to two varieties with finely coloured leaves. One called *aurea* has yellow foliage, the other named *atropurpurea*, has purplish leaves. The former is a variety of the common Nut (*Corylus Avellana*) and the latter of *C. maxima*.

COTONEASTER (*Rockspray*).—These are delightful, berried shrubs that no garden can properly do without. One of the most useful is called *Simonsi*. This makes a large bush some 5 or 6 feet high, and bears its scarlet berries freely. It is, perhaps, the most commonly planted of all, and is one that can almost always be depended upon to bear a harvest of berries. The most vigorous is *frigida*, growing 20 feet or more high, and a well-grown plant covered with its bright red fruits is an attractive sight. Of the smaller growing sorts, the two favourites are *horizontalis* and *microphylla*. The latter is quite a small plant and more suitable for the rockery than the garden border, and there, indeed, it makes a most welcome change. *Horizontalis* is commonly grown as a trailing shrub, but if put out against a wall facing south or west it makes a good climber. Both are covered with small red berries in late summer and autumn. Nor are the flowers of the Rocksprays to be forgotten. They are not, perhaps, worth growing for the sake of their flowers alone, but when in early summer they are covered in white blossom they are not to be despised as

flowering shrubs. The Rocksprays thrive in ordinary soil, and if it is desired to increase them this is not a difficult matter if cuttings are put in a cold frame in October, using sandy soil in which to insert them.

CRATÆGUS (Thorn).—Every one is alive to the charm of the Thorn as a flowering tree in early summer, but few amateurs plant the best varieties, so I may, perhaps, be allowed a word upon so familiar a subject, since the best are as easily grown as the others. One of the finest is a variety of the Cockspur Thorn (*Crus-galli splendens*), which has handsome leaves and red fruits. The flowers are white. *Cratægus mollis* is another white-flowered sort that deserves extended planting: it bears bright-red fruits above the average size. Then there are numerous varieties of the Common Hawthorn, or, as it is called when used as a hedge plant, the Quick. The drooping variety is particularly handsome when in bloom. In a well developed plant the pendulous branches reach almost to the ground, forming a fountain of bloom. Then there are the double white, double red, and the yellow-fruited sorts. The remarkable Glastonbury Thorn that blooms in mid-winter is a variety of the common Hawthorn, called very aptly *præcox*. The Firethorn, an indispensable plant for house walls, where it is such a beautiful feature of many gardens when covered with its scarlet fruits, is *Cratægus Pyracantha*. While the ordinary form has bright red or scarlet fruits the variety *Lelandi* has orange scarlet berries, and is even more handsome.

GYDNIA (Japanese Quince).—The Japanese Quince that bears large, bright red blooms in spring is a popular flowering shrub, and its rich colour is particularly welcome so early in the year. On a warm wall the flowers open in March. The fruits also often ripen in this position, and are useful for making into jam. The variety *Maulei* bears yellow fruits which make excellent jam. There are several forms of the Japanese Quince with flowers of different colours: *alba* is white and *cardinalis* deep crimson. These plants may also be grown as bushes, but as they are chiefly valuable for their early flowers, it is better to put them against a wall.

CYTISUS (Broom).—The Wild Broom that is such a charming sight on sandy commons in England is *Cytisus scoparius*. It is well worth growing in the garden. The variety *andreasii* having yellow flowers marked with red brown is particularly attractive and a favourite garden shrub. One of the finest of all the Brooms is *præcox*, with cream or pale primrose-coloured blossoms, borne in great profusion in April. This makes a bush 5 feet high or more, and is a bewitching sight when in bloom. The white Broom (*Cytisus albus*) is equally beautiful, and grows about the same height, flowering rather later. These are among the very finest flowering shrubs for light sandy soil, and every garden that is so circumstanced should possess them in quantity. There are probably none that give the grower such a wonderful return in the way of blossom. Among the smaller-growing

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ONE OF THE MOST CHARMING OF ALL SPRING-FLOWERING SHRUBS (CYTISUS PRÆCOX).

Brooms one of the best is *kewensis*, with primrose-coloured flowers. It is seen at its best when allowed to trail over a bank in the rock garden. *Ardoi* is another of the same class, but with deeper yellow blooms than *kewensis*. Another, even smaller, and suited only for the rockery, is *decumbens*, yellow-flowered. *Purpureus* is distinguished, as its name denotes, by the possession of purple flowers. It is not at all strong-growing, reaching a height only of 1 foot or 2 feet. All the Brooms are happy in poor soil, and dislike being disturbed. They are very apt to grow bare at the base, but this can be prevented to some extent by cutting them back for the first two or three years after planting. They are raised from seeds, and as they often die when transplanted from the open ground they should be obtained in pots and planted out in their positions from these.

DABOCCIA POLIFOLIA (*Irish Heath*).—This is one of the most distinct of the many Heaths and bears large bell-shaped flowers in late summer. September finds it at its best. There is a white-flowered variety as well as the type which has rose red flowers. It needs a peaty soil, or, at any rate, one in which peat has been freely mixed to ensure its success.

DAPHNE.—The commonest of the Daphnes is, of course, the Mezereon (*Daphne Mezereum*), a pretty little stiff-growing plant that bears fragrant rose red flowers in early spring. Then in autumn come the attractive red fruits. There is a white variety (*alba*) that has yellow fruits. Perhaps the most charming of the Daphnes is one called *Cneorum*, the Garland Flower, that is most at home in the rock garden. It has sweet-scented, rose-coloured blossoms that open in May. Moreover, it is evergreen, and this is more than can be said for the Mezereon, which blooms on leafless shoots. *Daphne blagayana* with pale yellow, fragrant flowers, is often met with on the rockery, but it is not so showy as the other two mentioned. The Daphnes are rather slow-growing plants, even when planted in good soil, but they possess a charm that others altogether more showy lack, perhaps because their blossoms are so fragrant.

DEUTZIA.—The Deutzias are favourite flowering shrubs, and they are more useful for the small garden than some, because they do not grow out of bounds, but remain comparatively small. *Crenata*, 6 feet or 8 feet high, *gracilis*, 2 feet or 3 feet in height, *Lemoinei*, 3 feet to 4 feet, and *scabra*, about 5 feet high, are some of the best of the species, but there are now many very beautiful varieties that have been raised chiefly by M. Lemoine, of Nancy. The bushes are apt to become crowded, and thinning, which is carried out when the blooms are over, takes the form of cutting out the older growths.

DIERVILLA (*Bush Honeysuckle*).—The Diervillas are among the most accommodating of all shrubs. They succeed as bushes, or they are equally happy on a wall facing east or any other aspect, except perhaps one facing north. The named varieties are now chiefly grown, and the best of them are *Eva Rathké*, *Abel Carrière*, *candida*, and

rosea, candida having white flowers, the other blossoms of various shades of red. The finest flowers are obtained from the growths of the previous year, that is to say, one-year-old growths, so the pruning is directed towards cutting out the older shoots.

ELAÆAGNUS.—The several *Elæagnus* that are worth growing in the average garden are distinguished by handsome foliage. *Elæagnus pungens* is, perhaps, the most commonly grown. This makes a bush several feet high, and, unlike some of the others, its leaves do not fall in autumn. There are varieties with coloured leaves, *aurea* being one of the best. *Glabra* and its variegated variety and *macrophylla* are others well worth growing. The *Elæagnus* thrive in ordinary soil, and require little pruning beyond an occasional "shaping." They may be increased by means of cuttings of firm shoots inserted in July in a frame, while some sorts produce seed pretty freely, and these afford a ready means of increasing one's stock.

EMPETRUM NIGRUM (*Crowberry*).—The *Crowberry* is a small evergreen shrub, of dainty habit of growth and only some 8 or 9 inches high. It thrives best in moist peaty soil. The dark berries which succeed the pinkish flowers form its chief attraction. Propagation is effected in the same way as for most other shrubs—namely, by taking cuttings in July and inserting in sandy soil in a frame.

ERICA (*Heath*).—One may have flowers practically all the year round by planting a garden with *Heather* in variety, but the *Heaths* are chiefly valuable for their character of blooming in winter, early spring, and autumn. Although a soil in which peat is freely mixed suits them best, they will grow in ordinary well-dug soil that is well drained. They are only seen at their best when planted in the mass, and look best in beds by themselves. *Lilies* may be planted among them to have the bed gay with bloom during summer. One of the most generally useful is *mediterranea hybrida*, growing 10 or 12 inches high, and blooming all the winter and early spring. This is a plant that should be grown in all gardens; it is scarcely surpassed for general usefulness. *Erica carnea* is also a winter-flowering *Heath*. It does not grow so tall as that just mentioned, and has pale red flowers; there is a white variety. The *Cornish Heath*, *Erica vagans*, is a pretty, late summer-flowering sort. It grows 12 or 15 inches high, and has reddish blossoms that open in late summer and continue until autumn. *Erica cinerea*, growing only some 6 or 8 inches high, is an excellent late summer-blooming kind with red purple flowers very freely produced. The *Cross-leaved Heath* (*tetralix*), about 12 inches high, blooms in late summer and has pinkish flowers. *Erica ciliaris*, too, is a valuable red-flowered *Heath* blooming in summer. Some of the so-called *Tree Heaths* are very handsome, *arborea*, *luscitanica*, and *Veitchii* being the chief kinds. All have white flowers, and, as grown in English gardens, reach a height of 6 feet or more.

ESCALLONIA.—Several *Escallonias* are grown in gardens, but, unfortunately, they are not hardy enough ever to become very popular.

and need the shelter of a wall, except in the south. The most useful, because quite hardy, is *philippiana*, with white flowers. In northern gardens it is not uncommonly grown as a bush. *Macrantha* and *langleyensis* have red, and *exoniensis* and *floribunda* have white flowers. All are pretty well shrubs and bloom in early summer.

EUONYMUS.—I never think the Japanese *Euonymus* (*japonicus*) is seen at its best away from the seaside. There its leaves seem to take on a glossiness that in inland gardens does not distinguish them. It is often used as a hedge-plant, but away from the sea it is not so useful as the Privet. Moreover it has the disadvantage of being peculiarly susceptible to the attacks of caterpillars, which disfigure the bushes most horribly, if not immediately checked by syringing with Paris green or some other poisonous mixture. However, those who care for a change from the ubiquitous Privet in the way of a quick-growing hedge plant should try the *Euonymus*, especially if they live near the sea. A charming little plant is *Euonymus radicans*, a creeping or trailing plant, with evergreen leaves. Its variegated variety is even more attractive. Both are most useful for planting beneath large trees where little else will grow. *Euonymus europæus*, *latifolius* and *americanus* possess handsome fruits in autumn.

FORSYTHIA (Golden Bell).—This charming yellow-flowered shrub is in full bloom in March, and makes a most beautiful display. It may be grown on a wall, even one facing north, or as a bush in the open. The long, slender shoots become wreathed in blossom as the spring comes round. The common kind is *suspensa*. There are two others, *viridissima* and *intermedia*, but neither is such a graceful plant as *suspensa*. The one-year-old shoots flower most freely, so pruning takes the form of cutting out some of the older shoots when the flowers are over.

FRAXINUS (Ash).—I am not going to say anything about the common Ash. I wish merely to draw attention to the Flowering or Manna Ash, a most attractive tree, that in summer bears large bunches of whitish flowers. When one becomes possessed of a good specimen, say 20 feet or so high, it is a fine sight at flowering time. Two forms of Weeping Ash, *pendula* and *pendula* Wentworthi, are most attractive trees.

GARRYA ELLIPTICA.—The male form of this evergreen bears very handsome catkins in January, and if grown against a wall is quaint and attractive also. It is especially welcome, since it comes into bloom so early. The catkins are some 6 inches long and of greenish colouring.

GAULTHERIA SHALLON.—An evergreen shrub, valuable chiefly for planting in shady places. Its attractiveness is found in the purple berries which come in autumn. The Partridge Berry (*Gaultheria procumbens*) is an attractive little shrub, with evergreen leaves and pretty red berries; worth planting in the rock garden. Both like a deep moist soil.

GENISTA.—The average amateur gardener would probably regard the *Cytisus* and the *Genista* as the same kind of plant, and, in fact, they are closely allied. Like the Brooms, they are best in light soil, and all have yellow flowers. One of the best is the Spanish Broom (*Genista hispanica*). This is a spiny little shrub about 2 feet high, and in early summer bears at the top only a mass of yellow flowers. *Genista virgata* and *æthnensis* are two tall-growing sorts, the latter being the most graceful of all the *Genistas*.

HALESIA (*Snowdrop Tree*).—*Halesia tetraptera* is an attractive bush or small tree that is rarely seen in gardens. It has white drooping blossoms, not unlike those of a Snowdrop, that open in early summer. It thrives in any well-dug and fairly deep soil.

HAMAMELIS (*Witch Hazel*).—The Witch Hazels are pretty flowering shrubs, that bloom quite early in the year, in January. One of the best Witch Hazels is *arborea*, which bears curiously twisted yellow blossoms in January and February. The bush is then leafless, and the quaint flowers studding the dark branches make a most attractive display in the dull winter days. A variety called *zuccariniana* has lighter-coloured flowers, and one called *virginiana*, also yellow, blooms in late autumn. They are well worth planting in any and every shrubbery, they thrive in ordinary soil, and need little or no attention. *Mollis*, the best of all, bears fragrant flowers even earlier than *arborea*.

HARDY BAMBOOS.—Bamboos at their best are equalled for grace and beauty by no other group of shrubs, but unfortunately from the end of February to the end of June they look decidedly shabby. Then the old leaves are falling, and the fresh leaves are not sufficiently advanced to be noticeable. Previous to falling, the leaves become very shabby, and cold winds in spring assist in the work of disfiguration. For this reason it is best to give Bamboos a corner to themselves. At other seasons they are most attractive, and throughout autumn and early winter their plumose branches, clothed with bright green foliage, are generally admired. After a plant has flowered it dies, or if it does not die outright, it lingers on in a very unsatisfactory condition. Usually, too, one particular kind flowers almost everywhere within a period of three or four years. Consequently it is no use for one whose clump of any particular kind has flowered to attempt to replace it by obtaining a piece of a plant from another garden. The only thing to do is to obtain seedling plants, and it is probable that importations will have to be made from Japan of many kinds. It is quite probable that seedlings will grow for thirty or forty years without flowering. Bamboos like rich, moist ground, and are at home on the margin of a stream or lake. Where plantations are made away from natural water, provision ought to be made for watering them during a period of drought. Leaf mould mixed with the soil is a great help, whilst a top dressing of rotten manure in spring has the dual effect of keeping the surface roots moist and feeding the plants. Large clumps sometimes benefit by being divided and replanted in May.

The same period is the best for any transplanting that may be necessary. Propagation is usually effected by division of the clumps, but whenever seeds are available they should be sown. When a large number of plants is required, a clump may be broken up into quite tiny pieces, providing the pieces are placed in pots in a warm greenhouse until new roots are active. When larger pieces are required they may be planted in the open ground. Newly planted specimens should be well watered. Pruning takes the form of cutting out, right to the root stock, a number of the old, worn-out branches each spring. March or early April is a good time to prune. When forming a Bamboo garden care should be taken to select a situation sheltered from cold winds, for they cause more injury than frost.

About forty hardy kinds are known, and they belong to *Arundinaria*, *Phyllostachys*, and *Bambusa*, the two former being the more important. The various kinds differ considerably in habit; some form upright branches 18 feet high, others slender, semi-pendulous, wand-like growths, and others again dwarf masses of shoots resembling a strong grass. For general purposes, the following may be accepted as a selection of the best:—

Arundinaria anceps, an elegant plant 8 feet high, which increases rapidly by means of long, underground stems. It has the habit of running below ground and suddenly springing up at a distance of several feet from the parent clump and forming a new colony. *Auricoma* rarely exceeds 4 feet in height; the leaves are variegated with yellow. It is improved by being cut hard back to the ground line now and then. *Fortunei* grows from 2 to 3 feet high. It is of dense habit, with silver variegated leaves. *Hindsii* is not particularly ornamental, but it has a variety called *graminea*, which is a desirable plant. Growing 9 or 10 feet high, it is of upright growth, with long, narrow, deep green leaves. *Japonica* is probably the oldest known Bamboo which is grown out of doors. In some gardens it is familiar under the name of *Bambusa Metake*. Forming a large clump 15 feet high, it is a rapid grower, and succeeds in more exposed situations than many other kinds. *Kumasasa* is known by two names, *Bambusa palmata* being the commoner one. Of rapid growth, it forms dense thickets of shoots 7 to 8 feet high. *Nitida* is one of the most graceful of all Bamboos. Its slender, semi-pendulous shoots rise to a height of 8 feet, and are clothed with the daintiest of green foliage. *Simoni* is a tall-growing kind. The upright shoots reach a height of 16 or 18 feet.

Phyllostachys aurea has yellowish stems and gracefully arching branches. *Fastuosa* is one of the handsomest of the larger growing kinds. Under favourable conditions it reaches a height of nearly 20 feet, and is of more upright habit than most of the *Phyllostachys*. *Flexuosa* is a useful kind. *Henonis* is a vigorous plant. *Nigra* is distinct on account of its black stems. *Viridi-glaucescens* is perhaps the commonest of this group. It is of vigorous growth and ornamental appearance.

HEDERA (Ivy).—Perhaps what I have to say about the Ivy should be restricted to a description of the best varieties, for everyone knows its great value as a self-clinging, climbing plant for even sunless walls. The leaves of the different sorts vary greatly in size. The old fallacy that Ivy planted against a house-wall makes the house damp still lingers, so that it may perhaps be well to point out that it has no foundation in fact. When a wall is thickly clothed with Ivy all the leaves should be clipped off in March; fresh young growth will soon make its appearance. This annual clipping is of great advantage; it not only gets rid of much rubbish and old leaves, but renders the Ivy-covered wall much more attractive. The Irish Ivy is the most handsome of the large-leaved forms, and is very attractive if trained over rough poles or tree stumps. It may be worth mentioning that when Ivy reaches the top of the support it assumes a shrubby form and begins to bloom. If cuttings are taken from those growths that have developed the shrubby habit a collection of small Tree Ivies may be obtained. Of the numerous varieties of Ivy the following form a good selection: *algeriensis*, large, greenish yellow; *canariensis*, Irish Ivy, large, green; *dentata*, green; *digitata*, dark green and white; *Emerald Gem*, dark green; *maderensis variegata*, green and white; *marginata*, green and white; *marginata aurea*, green and yellow; *chrysophylla*, green and yellow; *purpurea*, dull purple; *colchica*, large, green.

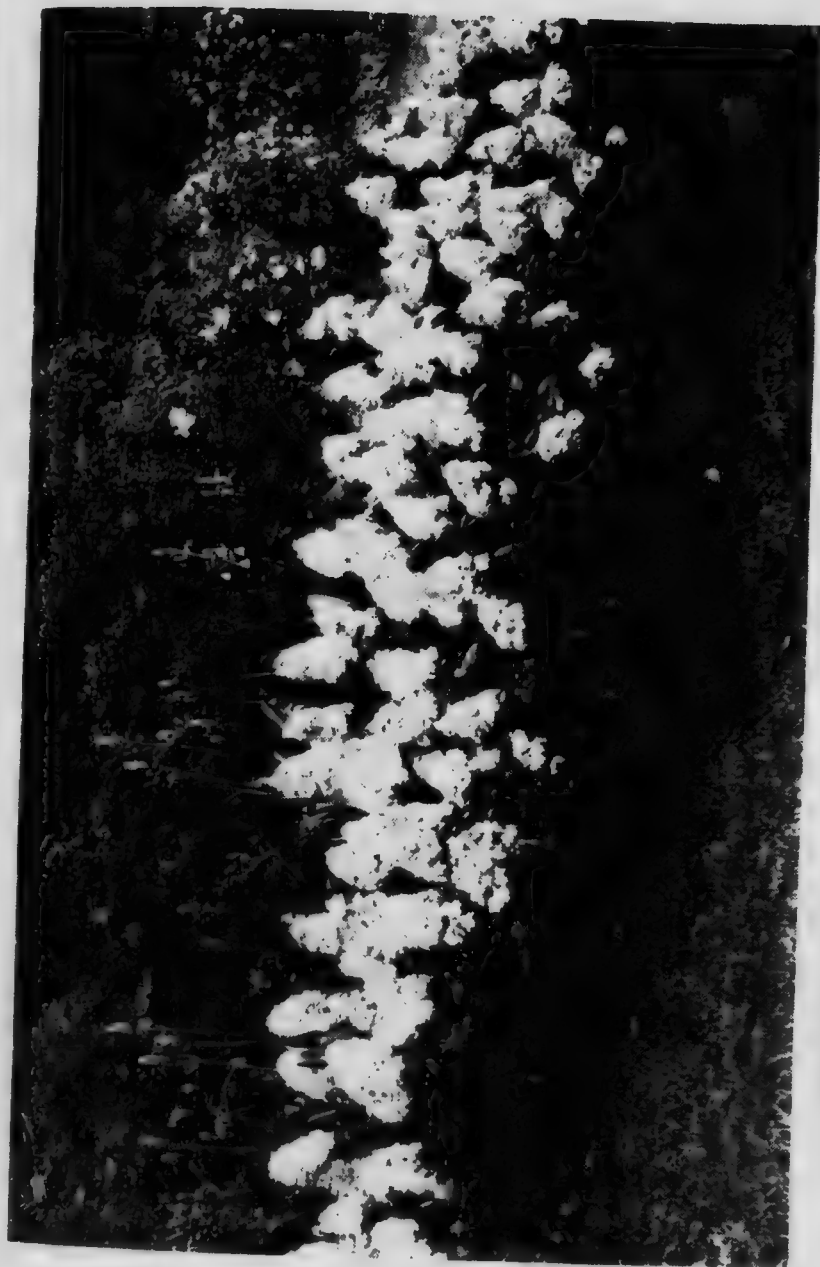
HELIANTHEMUM (Rock Rose).—When two plants are called by the same common name, it makes it rather difficult for the writer and confusing for the reader. It will be remembered that the *Cistus* is also called the Rock Rose. *Helianthemum* is, however, quite a different plant. It is of low growth and suited chiefly for edging. It likes a sunny spot and a light soil: then its pretty Strawberry-like flowers in many shades of colour may be expected to be freely produced in early summer. As with the *Cistus*, the individual flowers do not last long, but they are freely and continuously produced, so that during its blooming season the plants are full of blossom. There are many varieties of the common sort, *vulgare*, and the flowers vary in colour from white, through pink and rose to crimson.

HIBISCUS SYRIACUS (Tree Mallow).—The chief of the few things to be urged against the Syrian Mallow is the short life of the flowers; on the other side of the count are to be placed to its credit that it is in bloom when most shrubs are over, that it is happy in poor soil, and that the flowers are handsome. It grows 6 feet or more high. It is freely made use of in gardens on the Continent for growing in tubs, and very attractive it is when treated in this way. One might with advantage make a group of it in the shrubbery, for in addition to the virtues already extolled it has the merit of not being common. It is quite an easy shrub to grow, ordinary soil suiting it; in fact, if the soil is too rich, it will make growth at the expense of flowers. *Bleu Coeleste*, with blue purple blossoms, is one of the

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THE PANICLED HYDRANGEA (PANICULATA GRANDIFLORA) IN A LONDON PARK.

favourite varieties of which there are many in varied shades of colour.

HIPPOPHAE RHAMNOIDES (*Sea Buckthorn*).—Those who value berried shrubs (and who does not? since, generally, they show their chief beauty in winter) should make a note of the Sea Buckthorn and underline it. It forms a big bush or small tree, has beautiful grey leaves, and in autumn and winter, when these have fallen, the handsome orange yellow berries which are produced in great profusion, take on their attractive colouring and make a brave show. The female and male flowers are produced on different plants, so to ensure a good "set" of berries, a plant bearing male flowers should be planted to every half-dozen or so of the other. Those having seaside gardens should plant the Sea Buckthorn freely, for its home is on the seashore of this and of other European countries. It seems at home in any soil, even that which is light and sandy, which is perhaps what one would naturally expect.

HYDRANGEA.—Everyone who is at all familiar with the gardens of the south-west of England and Ireland must often have admired the fine bushes of Hydrangea that are to be seen growing out of doors there. Alas! the pink Hydrangea is not hardy enough for most gardens, so it is sheltered in the greenhouse during winter and brought out to embellish the flower garden in summer. There is, however, one very handsome Hydrangea that is quite hardy, though comparatively rarely met with. Its name is *paniculata*, and even this is surpassed by its variety *grandiflora*. The finest flower bunches are obtained when the shoots are cut hard back each spring, so as to induce the growth of vigorous shoots, for it is at the end of these that the flowers are borne. An excellent group of the variety *grandiflora* is shown in the accompanying illustration. The type *paniculata* has smaller flower bunches of the same colour—viz., creamy white. The Climbing Hydrangea (*scandens* or *petiolaris*) is a beautiful plant which has the rare merit of being self-clinging when it is given a good start by being nailed to the wall for the first year or two. It thrives on a wall facing west admirably, and in summer bears large bunches of white flowers.

HYPERICUM (*St. John's Wort*).—If the gardener should by any mischance have to restrict his collection of St. John's Worts to one kind only, he need have no hesitation as to which to choose. For *calycinum* is one of the most useful plants that any garden can contain. It is low-growing, is evergreen, bears large yellow flowers in summer, and is invaluable for forming a carpet of leaf and blossom in a shady spot. One called *moserianum* is one of the most handsome of the dwarf-growing sorts, about 12 inches high, and with showy yellow flowers. *Androsæmum* is another good sort. Of the taller sorts of slender growth, *patulum* and its variety *Henryi* make attractive beds for the lawn, and although the blooming time is in late summer flowers are still freely produced even in October. The St. John's

Worts are readily increased by cuttings put in soil in a cold frame in October.

ILEX (Holly).—What a pity the Holly is so slow growing. One has to wait a generation or so to see the result of one's planting in the form of a well-developed tree, or a fine hedge, but there is this to be said, that the result will not be disappointing if the planting is well done, and subsequent care is not wanting. There is no hedge comparable to one of Holly, and well-developed specimen plants of some of the best varieties are very handsome, and at once remove the reproach of commonplace from a garden. The Holly bears clipping well, and those who care to do so may cut their trees into all sorts of grotesque shapes, although the Yew is more commonly maltreated in this way. Hollies are not seen at their best on light land, they need a deep loamy soil. In light soil they make poor growth and are apt to become bare at the base. There is one most important point about the Holly that the amateur should take note of, namely, the proper time to plant. April and May, or September, are the months in which to plant or transplant Hollies. The plants need careful attention in the matter of watering for some time after planting, especially if the weather is dry do they require copious and frequent supplies of water. A mulch of rotted manure is also beneficial, since it tends to prevent the soil becoming dry. The common Holly and some of its many varieties are usually planted. Nearly all are red fruited, but the variety called *fructu-luteo* has yellow berries. Among the green-leaved sorts the chief are *camelliaefolia*, with particularly handsome, deep green, and almost smooth leaves, *Hodginsi* having unusually large leaves, and *altacalarensis*, with large, handsome foliage. Some of the best of the silver variegated sorts are: *Silver Queen*, *Silver Milkmaid*, and *argentea marginata*, and of the golden varieties, *Golden Milkmaid*, *Golden Queen*, and *aurea marginata*. The weeping Hollies are not often grown, but they form handsome trees for the lawn. One called *Perry's Weeping* is perhaps the best.

JASMINUM (Jasmine).—The two chief Jasmines are well-known climbing plants. *Nudiflorum* is the yellow-flowered sort that blooms in winter, while *officinale* has white flowers that open in summer. A very beautiful and comparatively new Jasmine is *primulinum*, having large yellow blooms, but its hardiness does not seem assured, although it has passed the winter safely on a sunny wall near Kingston. The mistake is often made of pruning the yellow Jasmine in autumn or winter with the object of "keeping it tidy." But to do this is to cut away just the growths that a few weeks later would have been covered in bloom. The time to prune the winter Jasmine is as soon as the flowers are over. Then the gardener may tidy the plants to his heart's content, for cutting back at that stage will ensure strong growths that will be full of bloom the following winter. The only pruning needed by the summer Jasmine is done in late summer

after its blossoms are over, and then the older shoots are cut out where they are most crowded.

KALMIA (*Mountain Laurel*).—This is a shrub for the few rather than for the many, for it is seen at its best only in soil that contains a good deal of peat, and one that contains lime is fatal to it. The most popular is *Kalmia glauca*—partly leaf-losing, and having bunches of charming rose-coloured flowers in May and June. *Kalmia latifolia*, which is evergreen, is a finer plant, however, it grows some 5 or 6 feet high, and in early summer bears clusters of pink blossom freely. *Glauca* grows only some 2 feet high. *Angustifolia*, 1 to 2 feet high, is evergreen, with rose-coloured flowers.

KERERIA JAPONICA (*Jew's Mallow*).—This is a very old plant, of which the double-flowered form is more valuable than the single. Both may be grown as bushes, but they are seen at their best when allowed to climb against a wall. There the long growths, covered with pretty light green leaves and in spring full of bright yellow flowers make a brilliant display. The blooms of the double variety are like balls of gold. The double-flowered sort is best suited for planting against a wall, as it is naturally a much taller-growing plant than the single variety.

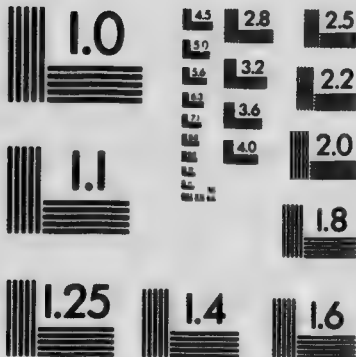
LABURNUM (*Golden Chain*).—It needs no written lines to extol the beauty of the familiar Laburnum, for is it not a common sight in almost every other garden? And what is there to surpass it for beauty, when in May it is in full bloom? The common Laburnum is vulgar, but this is not by any means the only one. There is the Scotch Laburnum, which has rather longer flower bunches than the common sort, while one called *Watereri* is perhaps the most distinguished of all. A most remarkable Laburnum is *Adami*, of which the following account is given: "This is popularly called the Purple Laburnum. It originated in 1825 as a graft hybrid. Its origin is curious. It is what is called a graft hybrid. It is really a cross between *Cytisus purpureus* and *Laburnum alpinum*, the Scotch Laburnum. The former was grafted on the Laburnum by a French grower a century ago, and the result is a tree that produces flowers of different colours. Ordinary yellow typical Laburnum flowers, purple Laburnum flowers and flowers exactly like those of *Cytisus purpureus* sometimes appear on the one tree. Another year the tree may produce only yellow flowers, or perhaps two kinds only." Species of Laburnum are increased by seeds, but varieties are budded or grafted on common kinds.

LAUREL (*Prunus Laurocerasus*). Everyone knows how valuable an evergreen this is, and what a handsome hedge it forms. The bright leaves are especially handsome. I saw a giant hedge of Laurel the other day in a garden in Bucks, and thought at the time it was quite one of the most handsome hedges I had met with. Owing to its large leaves the Laurel does not bear cutting well, and the base is liable to get bare. Sometimes, in very severe winters, Laurels



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are injured, but if cut back hard in spring they soon make vigorous growth again. When grown as a hedge they afford mutual protection and are far less likely to be damaged. Often one sees a broad bank of Laurel bordering the sides of a carriage-drive in the shade, and for this purpose, and for this position, there is, I think, nothing better suited. There are several varieties, one of the finest being that called *Otinii*. The Portugal Laurel (*Iusitanica*) is also a good evergreen, having darker and narrower leaves than the common Laurel. It makes a big and attractive bush when well developed. The best time to transplant the Laurels, especially the Portugal, is in April or early September.

LAURUSTINUS (*Viburnum Tinus*).—This is an invaluable winter-flowering evergreen shrub, and it is indispensable in even the smallest garden. Its flat bunches of pink buds and white flowers nestling among the attractive leafage in December and January are most welcome at such a dull season of the garden year. It thrives in almost any position, although in a shady spot naturally its flowering is later.

LEDUM (*Labrador Tea*).—*Ledum latifolium* is a small-leaved evergreen that bears white flowers in May. It belongs to the Heath family. Like the *Kalmia*, it thrives best in soil with which peat is freely mixed; in fact, it may be said to need this kind of soil.

LIGUSTRUM (*Privet*).—Probably no shrub has been more maligned and, on the other hand, more highly praised than the Privet, by those who regard it from different points of view. No one can deny its great value as a hedge plant; none grows more quickly; in fact, I doubt if any grows so quickly; it is practically evergreen, and it thrives under the most amateurish treatment, and, as a good hedge plant should, it bears clipping well. It has, however, been so freely planted that now it is derided as plebeian, and consequently is shunned by those who are anxious to have their gardens different from those of other people. Those who dislike the Privet point out that the flowers have an evil scent. However good this objection may hold with the Privet grown as a bush, it is scarcely to be considered when the Privet is used as a hedge plant. The frequent cutting precludes it from flowering to any appreciable extent. It grows so freely as to need clipping three times a year: in spring, in summer, and again in autumn, when growth has ceased, so as to keep it neat for the winter. If allowed to develop the Privet makes a big bush, and is then useful as a screen for hiding ugly buildings in a short time. Recently I saw Privet plants trained up the shady wall of a building; they were quite 8 feet high, and certainly preferable to the bare brick wall. The Golden Privet is well known, but I do not think it is such an attractive plant as the green-leaved sort. The Oval-leaved Privet (*ovalifolium*) is far more handsome than the common, narrow-leaved kind (*vulgare*), and should be planted in preference to the latter. Several other kinds of Privet are in cultivation, and form handsome specimen plants, though they are not used as hedge plants. The

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A SHRUBBERY BORDER WITH SPRING FLOWERS MASSED TOWARDS THE FRONT.

Chinese Privet (*sinense*) is probably the most attractive of all when grown as a shrub or small tree. Its leaves are light green, and the cream-white flowers are freely produced in summer. *Lucidum* is a good evergreen Privet, while one of the best of the leaf-losing sorts is *Quihoui*. The flowers of this are especially attractive; they are in graceful bunches and open in September.

LIQUIDAMBAR.—The value of this shrub to the gardener lies in its brilliant tints that the leaves take on in autumn; they turn bright red, and add much to the attractiveness of the garden, even when it is aglow with brilliant leaves. *Styraciflua* is the best, and is the one commonly grown.

LIRIODENDRON TULIPIFERA (*Tulip Tree*).—A tree that is rarely planted in gardens, perhaps for the reason that it is seen at its best only when full grown. Small specimens are, however, attractive when the greenish-yellow, Tulip-shaped flowers are open. It blooms in high summer, and thrives best in deep soil of good quality.

LONICERA (*Honeysuckle*).—There are climbing Honeysuckles and those of shrubby growth, the former being better known and more generally useful. The common Honeysuckle that throngs the hedgerows throughout this country is *Periclymenum*. Several forms of this are commonly grown in gardens, the most popular being the Dutch and the late Dutch Honeysuckle. *Lonicera Caprifolium*, said by some to be a true native of this country and by others only to occur naturalised, is a rampant growing kind, with pale yellowish flowers borne in early summer. The trumpet Honeysuckle (*sempervirens*) is a particularly handsome sort, but it is hardy only in the southern counties, and even there needs the shelter of a south wall. It is, however, a favourite climber for the greenhouse, and thrives there without artificial heat; the slender, tube-shaped flowers are red and yellow, and are produced throughout a long season. The Japanese Honeysuckle (*japonica*) is also a popular kind, and quite indispensable. The variegated leaved form is a most attractive climber for a wall, where its green and yellow leaves make a bright patch of colour that is always admired. Perhaps the best of the shrubby kinds is *fragrantissima*, that bears fragrant, whitish flowers in mid-winter, and may either be grown as a small shrub or trained against a wall. There is little to say about the general cultivation of the Honeysuckles, for, as everyone knows, they thrive in ordinary soil, and after the first year or two make rapid growth. All those mentioned, except *sempervirens*, may be grown in the open garden, and are invaluable for covering arbours, arches, and tree stumps. The only pruning that is necessary is occasionally to cut out some of the older growths when the shoots become crowded.

MAGNOLIA (*Lily Tree*).—There are both evergreen and leaf-losing Magnolias, the latter being the most useful. Among the leaf-losing kinds are several beautiful spring flowering shrubs. In April they bear large cup-shaped blossoms, white, purple or rose-coloured, and nothing in the garden then surpasses them in beauty. The most

popular is the Yulan (*Magnolia conspicua*); this makes a small tree some 15 or 20 feet high, and bears its large white blooms freely in April. It blossoms freely when quite young. *Magnolia obovata*, with purplish flowers; *soulangeana*, purplish white; *Lennei*, reddish purple; and *stellata*, bearing a profusion of small, star-shaped flowers, are the best. The latter blooms in March, and even a small bush is smothered in blossom. The Star Magnolia, as *stellata* is called, usually grows only 6 feet high. It is perhaps the most suitable of all for the small garden, and is strongly to be recommended; the only drawback is that sometimes the blooms are marred by inclement weather. In the southern counties all those mentioned may be grown in the open garden as bushes, but in the cold, northern counties a wall is preferable for all except *stellata*. The finest of the evergreen Magnolias is *grandiflora*, a noble shrub or tree with thick, deep green leaves and, in summer, large cup-shaped, creamy white, fragrant blossoms that scent the garden for yards around. It is, however, not sufficiently hardy to plant in the open garden except in southern, sheltered districts, and should be put against a wall facing south. In the south of France this Magnolia is a magnificent sight when in full bloom; there it makes a tree quite 30 or 40 feet high. When planting the early-flowering sorts, it is wise to select a sheltered position. The best time to plant is in late spring, March and April, or in early autumn, September, and the soil in which they thrive is one that contains a little peat or leaf soil.

OLEARIA HAASTI (*New Zealand Daisy Bush*).—This is a most attractive evergreen shrub that is smothered with white flowers in July and August, a time at which few shrubs bloom. It is therefore to be cherished; it is especially suited to small gardens, for it does not grow more than about 4 feet high. *Olearia stellulata* is even more handsome, but it is not so hardy; the white flowers are larger and are very beautiful. This thrives in a border at the foot of a wall facing south.

PERNETTYA MUCRONATA.—An attractive little evergreen shrub, the chief value of which lies in the variously coloured berries that are freely produced, and are at their best in autumn and winter. It belongs to the Heath family. The berries are chiefly of white, pink, rose and purple colouring. The *Pernettya* prefers a peaty or sandy soil, but thrives in any soil of fair depth that is not clayey.

PHILADELPHUS (*Mock Orange*).—Probably no flowering shrub is a greater favourite than this, so often and erroneously called *Syringa* (the botanical name of the Lilac). The Mock Oranges are beautiful summer blooming shrubs that thrive in any soil of fair depth and quality, although seen at their best in deep loamy ground. There are several fine sorts in addition to the common one, *coronarius*, and all have white flowers. *Grandiflorus* and *Lemoinei*, together with *Boule d'Argent* and *Gerbe de Neige*, are others to be recommended. The tall growing kinds of Mock Orange need little pruning; merely cut out

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THE MAIDENHAIR TREE (GINKGO BILOBA), UNSURPASSED FOR CHARM AND GRACE. THE LEAVES RESEMBLE THE MAIDENHAIR FERN, AND TAKE ON BEAUTIFUL AUTUMN TINTS.

a few old shoots after flowering. The Lemoinei varieties need pruning back hard when the flowers are over.

PRUNUS.—The genus *Prunus* is one of the most important of all, for according to the present botanical classification it contains the Almonds, Plums, Peaches, Cherries, Apricots and even Laurels, and among these are found some of the finest flowering shrubs grown in gardens. The Almonds are valuable not only for the profusion of their blossom, but also on account of their early flowering: they are often in bloom in February in the south, though March usually sees them at their best. The common kind (*Amygdalus*) is generally grown, but there is a pink one called *dauriana*. Among the Cherries, the Bird Cherry (*Prunus Padus*) is familiar, and the pretty little bunches of white flowers are attractive, although the scent is none too pleasant. A double-flowered variety called *flore pleno* has longer flower bunches. One of the most distinct of the Cherries is *serrulata*, having branches almost horizontally disposed, that are in May smothered with white blossom, and presenting a glorious sight. A variety of the Japanese *Prunus Pseudocerasus* called James H. Veitch is a most beautiful shrub or small tree, bearing bunches of large, double rose-pink blossom, which is largely grown in flower-pots for the greenhouse. The double-flowered form of *Prunus Avium* or Gean is another handsome shrub or small tree, and its white blossoms are very freely produced. *Prunus triloba* and the double form are two lovely shrubs seen at their best when planted against a sunny wall. There, in April, the shoots are smothered in pink-white blossom. Among the true Plums one may mention as some of the best the double-flowered Sloe (*spinosa*) and the Cherry Plum (*cerasifera*); the former grows only some 6 feet high, while the latter makes quite a tree. Both have white blossoms. Then, finally, there is the Peach in its several varieties, among the most beautiful of all flowering trees. One called *atrorubens* has deep rose flowers, and brings an unusual colour glow to the garden in May. The *Prunus* thrive in ordinary soil, the Cherries being more suited to sandy ground. They need comparatively little pruning, this being chiefly directed towards keeping the trees of shapely form, to cutting out a few of the older branches that are worn out and keeping the younger branches thinly disposed.

PYRUS.—Included among the *Pyrus* are the flowering Apples and Pears, both invaluable to the gardener for their abundant spring flowers. Of the Apples some of the best are the Siberian Crab (*Pyrus baccata*), *floribunda*, the Crab (*Pyrus Malus*), *Schiedeackeri*, and *spectabilis*. All have pink or pink-white flowers. *Pyrus floribunda* is perhaps the best for the small garden; it makes a large shrub much like a bush Apple tree, and in May is covered in lovely pink blossom. *Pyrus spectabilis* is another especially well suited to most gardens. Among the Pears the chief are *communis* (the Common Pear) and *salicifolia*, the Willow-leaved Pear; this has the additional attraction of elegant, whitish-looking leaves. There is a handsome tree of the latter in

Victoria Park, in East London, and it is a charming sight when in full bloom in spring. Both these make large trees. Among other shrubs or small trees classed with *Pyrus* are the White Beam tree, distinguished by large, handsome leaves, green above, white beneath and white flowers which are succeeded by red fruits. The Wild Service Tree (*Pyrus Torminalis*), with white blossoms and red fruits, is also worthy of mention. Then there are the Mountain Ash, that is so attractive in autumn and early winter when loaded with its scarlet fruits, and *Pyrus Sorbus*, valuable for its white flowers. There is little to tell of the cultural requirements of the ornamental Pears, since they thrive in any ordinary garden soil of fair depth, and the pruning outlined for *Prunus* is applicable.

RHODODENDRON.—The Azalea, according to the botanist, is now classed with *Rhododendron*, although in gardens they are and probably for long will be known separately. The great distinction between these two shrubs so far as the gardener is concerned is that Azaleas are leaf-losing and *Rhododendrons* are evergreen. We need scarcely, therefore, concern ourselves with the number of stamens possessed by the respective flowers, the character upon which the botanist bases his distinction. Like all plants belonging to the Heath family, *Rhododendrons* will, with one or two exceptions, thrive only in soil that does not contain lime. Peaty soil was formerly considered essential to the successful cultivation of *Rhododendrons*, but this theory no longer holds good. They thrive in either light or heavy loam or in peaty soil. Mist-laden valleys, as occur in hilly districts or within a few miles of the sea, offer ideal spots for this shrub, though they thrive well enough in inland gardens on level ground. They need sunshine, though shade at midday is beneficial. Few shrubs appreciate a dressing of half-decayed leaves more than *Rhododendron*. This keeps the soil moist in summer and encourages the surface roots. Planting may be carried out at any time between early autumn and late spring, or even in summer, if care is taken to keep them well watered afterwards. One of the most remarkable *Rhododendrons* is called *nobleanum*; it bears red flowers in mid-winter. I have seen this kind in full bloom when the leaves were covered with snow. A race of fragrant *Rhododendrons* originating from *Fortunei* blossoms in May a few weeks before the ordinary varieties come into bloom. Good sorts among these are Miss Edith A. Boulton, Mrs. Thiselton Dyer, Duke of York, and George Thiselton Dyer, of various shades of pink or rose.

The following selection of garden varieties includes some of the best of the many that are now to be had :—*Album elegans*, white; *Alexander Dancer*, scarlet; *Amphion*, pink; *Baroness Lionel Rothschild*, crimson; *Broughtonii*, rosy crimson, very large truss; *Charlie Waterer*, scarlet, light centre; *Countess of Normanton*, white, slightly flushed; *Doncaster*, red; *Duchess of Connaught*, white, with lemon markings; *Earl of Shannon*, rich dark crimson, fine form; *everestianum*, rosy

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THE MOST BEAUTIFUL RHODODENDRON - PINK PEARL

lilac; *fastuosum* fl. pl., semi-double, lilac; Frederick Waterer, crimson; Gomer Waterer, white with pinkish flush, very large flowers; John Waterer, crimson; Kate Waterer, clear, rosy crimson, with yellow mark; Lady Clementine Mitford, pink, very large truss; Lord Palmerston, crimson; Madame Carvalho, white; Marchioness of Lansdowne, rose; Michael Waterer, scarlet, very free flowerer; Minnie, white; Mrs. R. S. Holford, deep pink; Mrs. John Clutton, white; Mrs. Tom Agnew, white with lemon blotch; Mrs. William Agnew, pale rose, yellow centre; Pink Pearl, pink, enormous flowers and trusses; Queen, white; Sappho, white with dark spots.

One of the most useful and most attractive of the smaller growing Rhododendrons is *præcox*, that blooms in early spring, and is then smothered with lilac-rose blossom. Others are *cinnabarinum*, with greyish leaves and orange-red, tube-shaped flowers; *ferrugineum*, the "Rose des Alpes," growing only 2 feet high, and having red flowers; *hirsutum*, similar to *ferrugineum*, but distinguished by the fact that it will thrive in soil containing lime; *Smithi aureum*, with yellow flowers; *racemosum*, with pink blossom; and *yunnanense*, with white blossoms marked with red. *Azaleoides* is a free-flowering sort, with lilac and white, fragrant flowers.

A set of evergreen Rhododendrons with lovely, fragrant, white flowers is composed of such as *Edgeworthi*, *formosum*, *veitchianum*, *ciliatum*, and their respective varieties. In most parts of the country they must be grown in pots, or in a border in a cold greenhouse. Sandy peat is the most suitable soil for them. The Malayan kinds are represented by a few such as *malayanum*, multicolor, and *jasminiflorum*. By their intercrossing a large number of hybrids with brilliant flowers have been obtained. These must all be grown indoors in a moderate or stove temperature. In places where a mild climate is experienced, a wide range of large-growing, Himalayan kinds may be grown out of doors. Many of these are extremely ornamental. The following are suggestive of the kinds referred to: *arborescens*, *barbatum*, *campylocarpum*, *Falconeri*, *Gauche*, *Griffithianum*, and *Hodgsoni*.

RHUS (Sumach).—The Sumachs are grown for their handsome leafage, which in some kinds takes on most brilliant autumn tints. *Cotinoides* is the best for autumn effect, and in a lesser degree, *typhina*. The latter, known as the Stag's Horn Sumach, has deeply divided leaves, and is one of the most attractive; in autumn the tall spikes of reddish fruits add to its decorative value. The Venetian Sumach (*Cotinus*) is a particularly charming shrub in autumn, when covered with its masses of feathery fruits that give a cloud-like effect in the distance. The Poison Ivy (*Rhus Toxicodendron*) must be mentioned if only to warn the reader against planting it. It has large leaves, each with three divisions, that become brightly coloured in autumn. They are most poisonous, and in coming in contact with the skin are liable to set up a severe form of poisoning.

RIBES (*Flowering Currant*).—No flowering shrub is more widely grown than the common red-flowered Currant. One sees it in shrubberies all over the country. It thrives well in the neighbourhood of towns, and is thus commonly planted in suburban gardens. There, however, it is often sadly mutilated, owing to the prevailing desire for "tidiness." Unfortunately the tidying up is usually carried out in winter, with the result that many of the growths that would have flowered are cut away. The best flowers are produced on growths of the previous year, and pruning should take the form of cutting out a few of the older shoots when the blossoming time is over. Splendens and atro-sanguineum are good varieties. There is a yellow-flowered Currant called aureum. Gordonianum is the result of cross-breeding between the red and yellow, and has orange-coloured flowers.

ROBINIA (*False Acacia*).—The white-flowered False Acacia is one of the most popular trees for street planting, and none is more suitable among flowering trees. The white blossoms are produced freely in bunches in summer, and the deeply divided leaves add to its attractiveness. It is a useful tree for suburban gardens, although rather a "robber." Robinia hispida, the Rose Acacia, is a choicer plant; it grows only into a large bush, while the False Acacia makes a tree.

ROMNEYA COULTERI (*White Bush Poppy*).—A very charming shrub that, alas! is not very hardy, and needs to be planted in a well-drained border at the foot of a south wall, in all except the most favoured southern gardens. The flowers are large and white, with a bunch of golden stamens for centre. Although a perennial the stems are often cut down by frost, but in spring fresh growths shoot up again. The leaves are of grey-blue colour, and add to the charm of the plant. The soil that suits it best is one that is well drained and made up chiefly of turfy soil with which sand is freely mixed.

RUBUS (*Bramble*).—Generally the Brambles are only suited for planting in the wilder parts of the garden, or in the shrubbery, but one or two, as, for instance, Rubus nutkanus and deliciosus, both with large, white flowers, and odoratus, having purplish blossom, are worthy of more care. The Moonlight Bramble (Rubus biflorus) is a remarkable plant, distinguished by white stems that are most effective in autumn and winter when the leaves have fallen.

RUSCUS ACULEATUS (*Butcher's Broom*).—Those who care for this curious plant, which has greenish flowers and no true leaves, may plant it in the shade, even beneath large trees. It is a native plant, and is found growing wild in woods in various parts of the country. The flowers are succeeded by red berries.

SALIX (*Willow*).—Varieties of alba vitellina are attractive if planted in moist ground near water and cut down to the base each spring for the sake of the young stems, which become brightly coloured in autumn, and in the dull days are a feature of much attraction. Then, of course, the exquisite Babylonian Willow (Salix babylonica)

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A FRAGRANT SHRUBBERY OF LILAC BLOSSOM.

is not surpassed as a tree for the waterside, although it shows its grace and charm only when fairly old.

SAMBUCUS (*Elder*).—I mention the Elder not for the sake of belauding so common a wayside tree, but that I may draw attention to several golden-leaved varieties, that bring a bright bit of colour to the garden in autumn. The best is a variety of *racemosa*; the leaves are prettily divided, and take on a rich colour as the sunshine wanes.

SKIMMIA.—The Skimmias are perhaps more often grown for the greenhouse for the sake of their bright red berries than out of doors. They are hardy shrubs, however, and the berries in autumn and winter add a touch of colour that gardens in the dull season can rarely afford to dispense with. One little point should not escape the cultivator who wishes to ensure a display of berries, namely, that the male and female flowers are on different plants. Each kind must be planted together. One of the finest of all is called *Foremanni*; it is a variety of *Skimmia japonica*.

SPARTIUM JUNCEUM (*Spanish Broom*).—This compares well with the spring and early summer flowering Brooms, already mentioned, in attractiveness, and is worth growing because the yellow blossoms are produced chiefly in late summer. The plant is of very slender, almost rush-like growth, and thrives in quite poor soil.

SPIRÆA (*Meadow Sweet*).—One of the most handsome Spiræas is the Goat's Beard (*Aruncus*), referred to in the chapter on hardy border flowers. The Spiræas are, however, chiefly shrubby plants, and some of them are of great beauty, flowering throughout a long season. One of the best of the dwarf growing kinds is *Thunbergi*, that is smothered in small, white flowers in early spring. In April *Spiræa arguta* and the double variety of *prunifolia* are out, both having white blossom. All these form small, bush-like shrubs. There are several tall-growing sorts that develop into large, handsome bushes, and bear plume-like flower bunches. Perhaps the best of these is *lindifolia*, with cream-coloured bloom, and *Aitchisoni*, white. Both bloom in August. *Spiræa japonica* is a popular sort, having red flowers in late summer. It grows about 2 feet high. An excellent variety and an improvement on the type is called *Anthony Waterer*; this also has red flowers.

SYMPHORICARPUS RACEMOSUS (*Snowberry*).—This is not usually included among a choice collection of shrubs, but it is worth while planting, I think, if only for the reason that its large white berries are attractive, and that it thrives in the shade.

SYRINGA (*Lilac*).—The Lilac is never likely to lose its fascination, for it flowers even before the garden is in the full flush of its beauty, the blooms are fragrant, and they are freely produced. There are nowadays many handsome varieties in varied shades of colour that add to the charm of Lilac time in the garden. Some of the finest varieties of the common Lilac (*vulgaris*) are: *Single*: Charles X., purple; Marie Legraye, white; President Grévy, lilac; Souvenir de Louis Spaeth, purple. *Double*: Leon Simon and Alphonse Lavallée. There

are several other beautiful Lilacs in addition to the varieties of the common sort. One of the most charming is the Persian Lilac (*Persica*), a graceful, slender shrub that bears its lilac-coloured blossoms freely and though lacking the rich colour of some of the named varieties, is still most attractive and one of my favourites. The Rouen Lilac (*chinensis*) partakes of the characteristics of both types; it was, as a matter of fact, raised by cross breeding between the two. It grows more vigorously than *Persica*, and bears similarly coloured blossoms. The Lilacs grow in any soil that is of average quality; the deeper it is, the better will they thrive. It is wonderful, however, how well they flower in sandy soil, even when apparently starved at the roots. Where amateurs make a mistake that is often reflected in shrubs that do not bloom freely, is in allowing the plants to become crowded. The shoots should be kept thinly disposed, so that sunshine and fresh air may have free access to them; then they become ripened, and may be expected to bloom well. The best time to do the thinning is after the blossoming is over.

TAMARISK (*Tamarisk*).—The Tamarisk is one of the most graceful shrubs grown in gardens and is, as everyone knows, a native seaside plant. At many seaside towns it is freely planted as a hedge plant. The most beautiful of all the Tamarisks is one called *Pallasii rosea*, or *estivalis*. It has long, slender, arching growths that bear plumes of rose-coloured flowers. The Tamarisks thrive best in light, sandy soil, and need little or no pruning beyond cutting out an old shoot occasionally, though *Pallasii* is best cut back in spring.

TECOMA (*Trumpet Flower*).—The Tecomas are climbing plants, chiefly grown in the heated greenhouse and remarkable for their brilliantly coloured flowers. *Tecoma radicans* is hardy on a wall facing south out of doors, at any rate in the southern counties, and is well worth planting there. The blossoms are orange-red in colour.

ULEX (*Gorse*).—There is perhaps little to say about the Gorse, a familiar native plant that covers the commons of many counties with a mass of lovely golden yellow blossom for weeks, even months, together. It is, however, worth planting in wild places in the garden. It will grow in sandy soil and on sun-scorched banks where often nothing else will thrive, and is scarcely surpassed for wealth of bloom.

VERONICA.—The only Veronica that can be classed as hardy is *Traversii*, which has lilac flowers. It makes a neat bush some 4 feet high, and blossoms in early summer. Those having warm, sheltered gardens in the south-west should try *Veronica speciosa*, an especially handsome sort with blue flowers.

VIBURNUM (*GUELDER ROSE*).—Perhaps the best known of the Viburnums is the *Laurustinus* (*Viburnum Tinus*), an evergreen shrub growing some 6 feet high that bears pink buds and white flowers in late autumn and winter. Another familiar one is the sterile form of the common Guelder Rose (*Viburnum Opulus sterile*), which bears rounded heads of white blossoms in June. It forms a big shrub

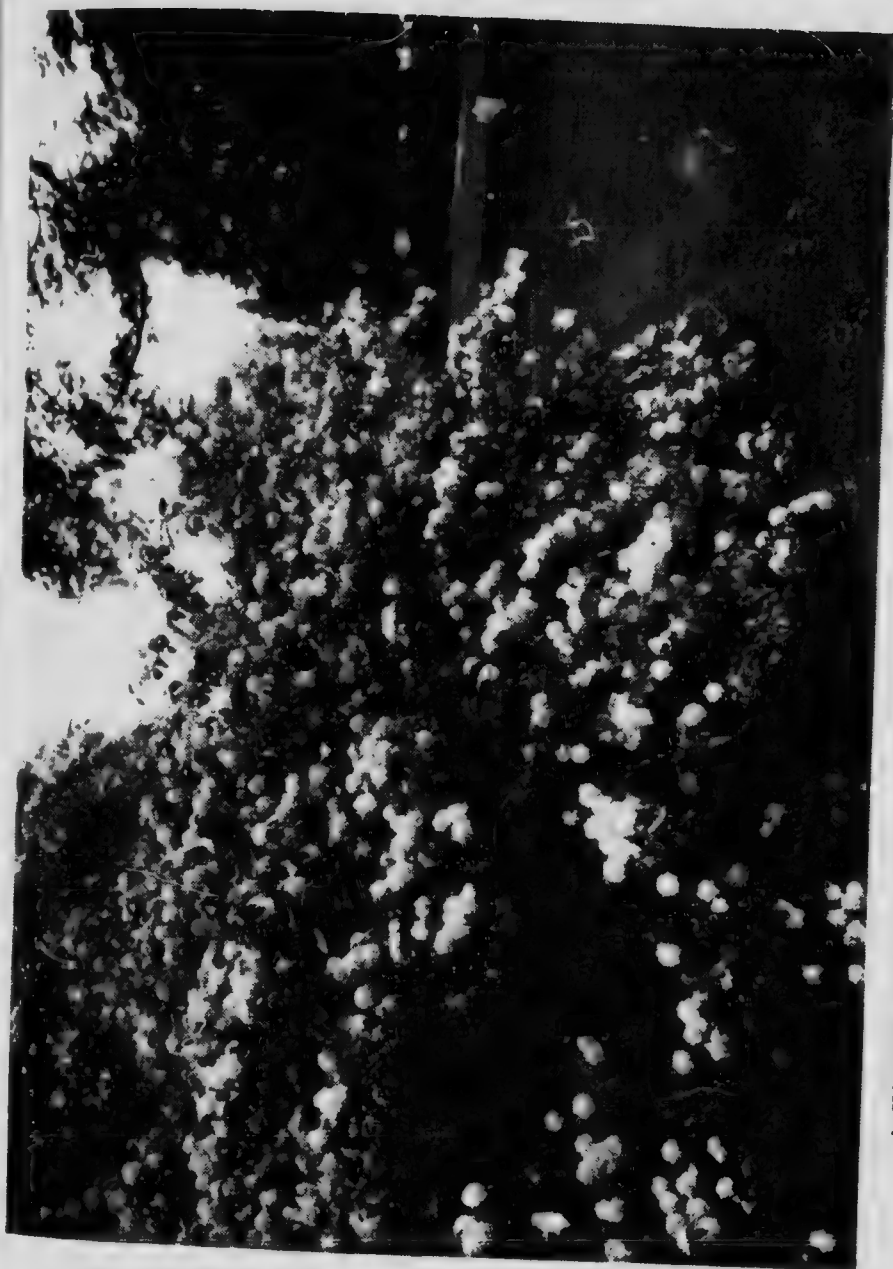
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A HANDSOME FLOWERING SHRUB, THE GUELDER ROSE (*VIBURNUM OPULUS STERILE*).



some 12 feet high. The beauty of *Viburnum* is shown by one of the illustrations. The true *Viburnum Opulus* has flat flower bunches which are followed by red fruits, and although an attractive shrub, is scarcely so popular as the variety sterile. The *Viburnum tomentosum*, variety *plicatum*, bearing showy heads of white flowers, is a particularly handsome shrub, some 6 feet high, that is not so commonly grown as its merits deserve; while *Viburnum macrocephalum*, still less often seen, is one of the most handsome of all, though not so useful as the others mentioned. The heads of white flowers are the largest of all, but they do not come very freely. *Viburnum Lantana*, also white-flowered, is the Wayfaring Tree, a native of Britain. The *Viburnums* are easily suited and thrive in ordinary soil that is well tilled. The only pruning they need is occasional attention in cutting out some of the older growths.

VINCA (Periwinkle).—The two Periwinkles, major and minor, are accommodating evergreens that grow well in the shade. Both bear blue flowers in summer. The lesser kind, of trailing growth, is often planted on the shady part of the rockery.

VITIS (Vine).—Those favourite climbers, the *Ampelopsis*, are now included by the botanist under Vine. Some of the true Vines are invaluable to the gardener, such, for instance, as *Vitis Coignetiae* and *Vitis Romanetti*, having large leaves which take on brilliant colour tints in autumn. Both are vigorous climbers, and reach to a great height. They are perhaps seen at their best when allowed to grow up the tall trunk of some tree, such as the Scotch Fir. Messrs. James Veitch have lately introduced several splendid new Vines from China, among them being *armata Veitchi*, with large leaves that take on rich autumn tints; *henryana*, with smaller leaves, dark green with white veins; and *flexuosa Wilsoni*, with small, bronze-coloured foliage. *Vitis Lowi* is a charming small-leaved creeper, that clings in the same way as the well known *Vitis inconstans* (*Ampelopsis Veitchi*). The true Virginian Creeper is *Vitis quinquefolia*; the leaves are deeply lobed and become brilliantly coloured in autumn. The self-clinging *Veitchi* is more useful for a house wall.

WISTARIA.—One of the most fascinating of all hardy climbing plants. Unfortunately it is of rather slow growth until well established. The exquisite mauve-coloured flower bunches are only seen at their best when the *Wistaria* is planted against a pergola or arbour, where they may hang down and show their exquisite grace. The *Wistaria* commonly grown in gardens is *sinensis*. One with far longer flower bunches is *multijuga*, now being more commonly planted. This is even more attractive than *sinensis*, the flower bunches measuring nearly 3 feet in length. There is a beautiful white variety of *multijuga*. The *Wistarias* thrive best in a sunny spot and in well drained, deep soil.

YUCCA.—The seven hardy *Yuccas* are readily distinguished from other shrubs by their strap-like leaves arranged round the top of the

stem, and by their large, upright panicles of cream-coloured flowers. All are evergreen, and they are of value on account of their distinctive appearance. When well grown, they give an air of tropical luxury to the garden. They are peculiarly adapted for planting in the higher positions in the rock garden, whilst they associate well with Bamboos, *Miscanthus* and kindred plants. *Yuccas* have the peculiarity of forming a single stem until the first flower spike appears; after the death of the flower-spike, two or more growth-buds develop, which in turn form single heads of leaves, until strong enough to flower, then additional branches are formed. Previous to the first flower-spike, branching only occurs from buds below ground, or from stem-buds succeeding an injury to the "head." Two sorts are better known than the remainder—namely, *gloriosa* and *recurvifolia*. Both are natives of the southern United States and grow into large plants 6 to 8 feet high. The former plant has large, upright, deep green leaves between 2 and 3 feet long and nearly 3 inches wide, whilst the leaves of the latter are almost as large, but the upper half of each one recurves in a pendulous manner. The flower-spike in each case rises to a height of 4 feet or so, with many branches, and bears hundreds of large, cream-coloured flowers. They are popular and suitable for small gardens and grow well about towns. *Gloriosa* is known by the common name of Adam's Needle.

Perhaps the next most popular kind is *angustifolia*, another American plant. It is very different from either of the foregoing, for it makes but a small stem, while the leaves, which are between 2 and 3 feet long, are little more than $\frac{1}{4}$ an inch wide and of a greyish colour. The flower spikes are conspicuous, being quite 2 feet high, with many branches. It is an excellent kind for the rock garden, or for planting on a sunny bank amongst stones. *Y. filamentosa* is also a dwarf kind, it is distinguished by the numerous loose fibres found on the leaves. The flowers are ornamental. A variety with variegated leaves is in cultivation. It is very decorative, and well worth a place in the garden. The leaves are striped with silver and green. Other hardy kinds which are sometimes grown, but are rather difficult to obtain, are *Y. glauca*, *Y. orchioides* and *Y. rupicola*.

The cultivation of *Yuccas* need offer no serious difficulties, for, given a sunny position and moderately light, well-drained land, they grow with ease. Sometimes the "heads" become top-heavy, and it becomes necessary to secure the stems to short stout stakes. The staking must, however, be done with care, or the plants will look very unsightly. Should a branch be blown or torn off, or a plant become too heavy for its stem, the branches may be placed in pots and kept in a warm greenhouse, when roots will be formed in a short time. Until roots are produced, however, care must be taken not to give much water. If the plants are kept moderately dry, rooting is encouraged. Propagation may be effected by other means than by severing the branches. An old stem, laid in coco-nut fibre or

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YUCCAS GROUPED IN THE GARDEN AT CHALICE HILL, GLASTONBURY.

other moist material in a warm greenhouse, will produce numerous shoots, which may be severed and potted singly in small pots; roots will form in the course of two or three weeks. Old rootstocks placed in a warm house may also be expected to produce numerous shoots from latent buds; these, too, form a means of increase. Young plants, rooted in pots, ought to be kept in pots until they can be planted in their permanent positions, for they are rather difficult to transplant successfully from an open border.

HEDGES.—The planting of hedges is a subject that has interest for every possessor of a garden, for no garden can be worthy of the name unless it is enclosed—the very name seems to be one that implies privacy, and its mention conjures up visions of a cool retreat shut in from the vulgar gaze. Privacy can only be ensured by the possession of a satisfactory hedge, therefore this should be one of the first aims of the gardener. As to the kind of hedge to be planted, this will, of course, depend largely upon the purpose for which it is required and the expense to which the gardener is prepared to go. If he wants just an ordinary hedge in the quickest possible time, he will have recourse to Privet, that much maligned yet, in a way, most satisfactory of all hedge plants. It is cheap, grows quickly, is practically evergreen, and bears any amount of clipping and cutting. If a protective hedge is required, there is probably nothing better than one of Quick or Thorn. Those who want a hedge that has a savour of the old world about it will probably plant Yew or Holly, for no plants make a better hedge, although few take so long to do it. Some of the Roses make fine hedges, although of course they cannot be clipped and kept thick and close like ordinary hedge plants. One of the most formidable of all Roses is Conrad F. Meyer; it makes great thick shoots 10 feet or more long in one season, and they are covered with fierce spines. If these long shoots are pegged down a hedge impenetrable to man is soon formed, although it would scarcely keep out small four-footed animals, since it would not be thick at the base.

White Thorn, Quick or Quickset.—This is really the common Hawthorn such as is frequently found represented by specimens of tree-like proportions in woods and other places. It is used more often than anything else for positions where strength is desirable. It grows well in almost any kind of soil, thrives where many things fail, and can be procured very cheaply.

Common Holly.—When a strong evergreen hedge is required the Holly will be found to answer admirably. Although of rather slow growth when young, it forms a dense hedge eventually, and will last in good condition for one hundred years. Hedges may be obtained 12 to 20 feet or more high, and 6 or 8 feet through. A hedge, however, 10 feet high and 4 feet through makes an effective barrier and gives excellent shelter. The practice is sometimes adopted of mixing Whitethorn

and Holly together in the proportion of six or seven of the former to one of the latter. The combination is a good one, and a strong hedge is the result. The Holly should be planted in May or September.

Common Yew.—The Yew is another good evergreen, and is held in much esteem for the formation of hedges. It attains similar proportions to Holly, and forms a dense hedge. In addition to the type, Yews with golden foliage may be used. Like the Holly, it is best planted during early autumn or late spring.

Oval-leaved Privet.—For dividing hedges in gardens this is very frequently used. It is very fast growing, forms a dense hedge quickly, and is useful alike for shelter and dividing purposes. For some positions the golden-leaved variety is effective. Both thrive in poor ground. The Privet is somewhat of a robber, and its roots should be cut back to the outsides of the hedge every spring.

Myrobalan, or Cherry Plum.—This wild Plum is of spiny growth, stands clipping well, and makes a fairly strong hedge. It is not fastidious with regard to soil.

Beech and Hornbeam.—These two are used very frequently where a tall hedge is required for a wind-break, and for this purpose they are most effective.

Common Laurel.—Although this is sometimes used, it is not generally recommended. The leaves are large, and if cropped with shears they are disfigured, hence much time has to be spent on a hedge to keep it in good order.

Escallonia macrantha.—This is used in some gardens in the warmer counties, such as Cornwall. It forms an excellent hedge for a special position, and bears red flowers freely. In the vicinity of the sea *Euonymus japonicus* and its varieties may be requisitioned, whilst the common Tamarisk is suitable for similar places.

Lawson's Cypress.—Although not commonly used for hedges, a good hedge can be formed of this tree. It, however, has a defect—it is apt to become thin at the bottom, and cannot be renovated as some plants can. In the southern counties the Holm Oak forms a good evergreen hedge, and stands clipping well.

Informal Hedges.—For this work many things will suggest themselves, such as *Berberis stenophylla*, Roses in variety, Brambles, Lavender, Rosemary, *Olearia Haastii*, double-flowered Gorse.

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YUCCA GLORIOSA OR ADAM'S NEEDLE.

CHAPTER XXVI

CONIFERS FOR THE GARDEN

THOUGH some Conifers assume their most luxuriant proportions on hillsides and in mist-laden valleys, peculiar to regions influenced by the equable temperature and regular rainfall due to the presence of the sea or large lakes in the vicinity, fine specimens of many kinds may be grown under less favourable climatic conditions. There are few districts where tree life is possible in the British Isles in which conifers of one sort or another will not thrive. An exception, has, however, to be taken to localities where the atmosphere is heavily laden with smoke, whilst the tenderer sorts are more susceptible to the evil effects of chemical fumes than many leaf-losing trees. The ground most suitable for trees of this description is that of a loamy or peaty character with a well drained subsoil. Should the land be plentifully sprinkled with pieces of rock or stone, it does not matter much, providing there is sufficient soil for the needs of the trees. Whilst Conifers enjoy a moist atmosphere and plenty of moisture at the roots, the majority dislike water-logged soil, consequently it is not advisable to make extensive plantations on such sites unless the drainage has been made good. On the other hand, land of a dry, gravelly character and also that of a stiff, cold, clayey nature is to be avoided. Where it is necessary to plant such ground, however, a good deal of previous preparation must be made. For isolated trees, holes 8 feet across and 1½ feet to 2 feet deep must be excavated and filled in with good soil. This is allowed to settle before the trees are planted. For an extensive plantation it may be necessary to trench the ground, unless it is for a clump of some common kind of Pine, when the opening of holes 4 feet across will answer the purpose.

The positions in which coniferous trees may be planted require some consideration. The large-growing kinds require a good deal of room to enable them to develop properly, consequently it is unreasonable to place them in very small gardens. The practice often obtains of planting Pines, varieties of *Cupressus lawsoniana*, Monkey Puzzle (*Araucaria imbricata*) Firs and Spruces in small front gardens. For two or three years they look passable, but after that they have usually a ridiculous appearance, being quite unsuited to the space and surroundings. Often, too, these gardens are found in the neighbourhood of large towns where the atmosphere is heavily charged with smoke, consequently leaf-losing trees or shrubs would be far more likely to succeed. For lawn specimens in country gardens, on

the other hand, many Conifers have much to commend them, and it is possible to get together a number of very ornamental and interesting trees. In parks, likewise, it is possible to produce fine effects by grouping or planting isolated specimens of various kinds of Conifers, whilst where a wind-break is required, few trees are more suitable than certain kinds of Pine.

A word or two about the purchase of Conifers is necessary, for people sometimes err in obtaining large, vigorous-growing plants rather than smaller ones of sturdy character. Generally, it is better to plant Conifers 2 to 4 feet high than those over 4 feet in height. This is especially the case with Pines, for, as a rule, the branches develop at a rate which is out of all proportion to the development of the roots, and the trees are difficult to establish. In addition to the roots in their disturbed state being incapable of supplying the branches with nourishment, they are unable to save the plant from being blown about by wind, therefore it becomes necessary to stake each tree. Small plants establish themselves in their new quarters quickly, and in the course of a few years surpass those that were much larger at planting time. In the case of expensive Conifers of any kind a good ball of earth ought to accompany the roots, especially if the plant is a large one. When planting, care must be taken to keep the top roots near the surface of the soil. It is a dangerous policy to bury the stem even to a depth of a few inches; many trees have been lost through this being done. Leaf mould, if obtainable, is very good material to mix with the soil at planting time, whilst a layer over the ground afterwards helps to keep the soil moist, and so assists in the formation of new roots.

Most Conifers are, of course, evergreen, but there are several leaf-losing sorts. Glancing first at the deciduous (leaf-losing) ones, we find several of more than ordinary interest. The Larches occupy a foremost place in the group, though they are of more value in the woodland than in the garden proper. Their beauty is most marked in early spring when the light and graceful branches are clothed with delicate green foliage, and the bright pink of the young female cones, and again in autumn when the leaves have taken on their golden colouring previous to falling. The most familiar species are *Larix europæa* and *L. leptolepis*. The Golden Larch, *Pseudolarix Kämpferi*, is more suitable than the ordinary Larch for garden work. It is a native of China, and is beautiful in spring by reason of its bright-green foliage, and again in autumn on account of its golden colouring.

Ginkgo biloba, the Maidenhair Tree, is another deciduous Conifer that is suitable for planting as an isolated tree. Rising in time to a height of 80 feet or 90 feet, it is conspicuous on account of its wide, fan-like leaves, resembling the pinnules of a Maidenhair Fern. In Japan its nuts are used for food. Another deciduous Conifer, suitable for planting in a moist situation, such as the margin of a lake, is found in the deciduous Cypress, *Taxodium distichum*. When young, it is

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THE GLAUCOUS CEDAR OF LEBANON (*CEDRUS ATLANTICA GLAUCA*),
PERHAPS THE MOST ATTRACTIVE OF ALL THE GREY-BLUE CONIFERS.

of fastigate habit, but the heads of mature specimens are more spreading. It is conspicuous in autumn by the rich brown hue of its leaves. Amongst evergreen Conifers the various kinds of *Cupressus* are perhaps most popular for general planting. *C. lawsoniana* is a host in itself, for it has produced numerous varieties, many of which are exceedingly ornamental. Half a dozen specially good ones are *intertexta*, *filifera*, *gracilis aurea*, *lutea*, *Beauty of Boskoop* and *Allumi*. *C. pisifera* is also useful, for it includes many of the so-called *Retinosporas*. *C. pisifera plumosa aurea* and *plumosa sulphurea* are to be commended. *C. obtusa*, a Japanese plant, also offers numerous varieties which are of a decorative character. The Yellow Cypress, *C. nootkatensis*, is another suitable tree for an isolated specimen, whilst the same may be said of *Cupressus macrocarpa*, *C. lusitanica* and *C. sempervirens* for the warmer counties. *Thuya gigantea* and its variegated variety are to be recommended, while a plant of special interest may be obtained in the Parasol Pine (*Sciadopitys verticillata*).

The Mammoth Tree of California, *Sequoia gigantea*, finds favour in many gardens; it is, however, most suitable for gardens where the atmosphere is moist and the temperature fairly equable. The same may be said of its relative the Redwood, *S. sempervirens*. Of the two the latter forms the more ornamental tree. Cedars are always popular, and in addition to the typical Deodar, Lebanon and Atlas forms, there are several showy glaucous-leaved varieties. The best for general planting is *Cedrus atlantica glauca*. Junipers thrive most satisfactorily on ground that contains lime; they are, on the whole, less useful than many other Conifers. Firs may be represented by *Abies brachyphylla*, *A. concolor*, *A. firma*, *A. cephalonica*, *A. Mariesi*, and *A. Pinsapo*, and Spruces by *Picea orientalis*, *P. pungens glauca*, *P. Morinda*, and *P. sitchensis*. The latter is very useful for planting in wet or exposed situations. Pines have many representatives. For shelter, *Pinus Laricio nigricans*, the Austrian Pine; *P. sylvestris* and *P. Thunbergi* may be used, whilst for ornamental planting, *P. excelsa*, *P. Peuke*, *P. Cembra*, *P. Pinea*, *P. bungeana*, *P. ponderosa*, *P. insignis* for gardens near the coast, *P. Laricio* and *P. Pinaster* form a useful set. The various kinds of Yew, golden and green-leaved, may all be pressed into service, whilst there are numerous other kinds of Conifers for people who wish for a wider selection. They may be found by reference to any general nurseryman's catalogue, and it is not necessary to mention more here.

CHAPTER XXVII

FAVOURITE BULBS

DAFFODILS.—As long as I can remember, the Daffodil has been regarded as a flower for the million—a flower needing little expert cultivation. Yet of late years it has attracted a great deal of attention from florists and flower-lovers, and, as with the Sweet Pea, it is in danger of being regarded as difficult of cultivation. It now has a literature of its own, and that in itself is sufficient to imbue the ordinary amateur with an exaggerated sense of its importance. There are even several Daffodil societies that hold shows where Daffodil blooms compete for prizes. All these things have a tendency to impress amateur growers who are not Daffodil specialists, that this grand old flower is one that demands expert cultivation, when, as a matter of fact, it certainly does not. May I ask the reader to glance at the illustrations of Daffodil blooms in this book? Among them are some that I grew in flower-pots in a cold greenhouse, the pots being filled with ordinary soil taken from the garden border. I am not sure that they would not have won a prize at a Daffodil show. Let no one succeed in convincing the reader that he cannot grow Daffodils. Why, even the most fastidious of experts can advise nothing better than well-dug soil enriched with bonemeal. Let us make up our minds that we can grow Daffodils. All we have to do is to dig the soil 18 inches deep, sprinkle in a little bonemeal deep enough to be below the bulbs, and plant the latter in September or October. Those who grow for exhibition plant their bulbs even in July. This is, doubtless, a good plan, for all bulbs are far better in the soil than in paper bags. However, we cannot all plant our bulbs in July; if we get them in by the middle of October we shall do very well.

DEPTH TO PLANT.—The question of the proper depth at which to put the bulbs is of some importance. The Rev. J. Jacob, a well-known writer on Daffodils, advises that the large bulbs should be put 6 inches beneath the soil, and the small ones 4 inches below, and slightly deeper in light soil. If the amateur has the top of the bulb 3 or 4 inches below the surface, he may be sure that he has not planted badly. From the time the Daffodil growths show through the soil, the latter should be frequently hoed so as to keep a loose surface.

A weekly sprinkling of fertiliser on the soil among the bulbs will help the production of fine flowers. What more is there to say about

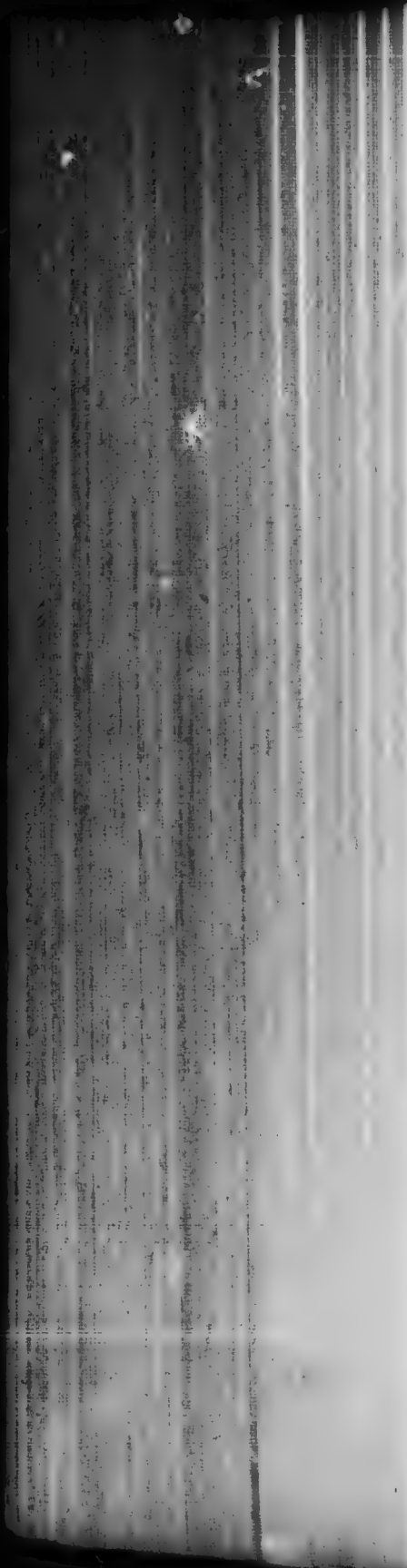
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SPRINGTIME IN THE WOODLAND. DAFFODIL EMPRESS PLANTED IN
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Daffodil cultivation that really matters to the average amateur, or, in fact, what more is there to be said that really matters at all? A common puzzle is that which is indicated by the question: What shall I do with the bulbs when the flowers are over? If the leaves are cut off, the amateur is told by experts that the bulbs will be worthless for another year. If they are left to die down naturally, their untidiness is a constant reproach. The simplest way out of the difficulty is, in the case of common Daffodils that are cheap, to take up the bulbs and throw them on the rubbish heap, give them away to friends, or if there is room, plant them in odd corners of the garden, or in rough grass. They will, in time, form a delightful feature. But when the garden is so limited that no odd corners exist, the bulbs will have to go. When a reserve border is available, and it is wished to preserve the bulbs, the simplest way is to dig them up carefully as soon as the blooms are over, and place them in a shallow trench, covering the bulbs and the base of the leaves with soil. There they remain until the leaves die down, when the bulbs are lifted, cleaned, sorted into sizes (all small bulbs or offsets being picked off), and either replanted at once where they are to bloom, or kept in thick paper bags in a dry storeroom until September or October, when, without doubt, they should be put in the soil.

In ordinary garden borders Daffodils usually bloom well enough for some years if left undisturbed, but their presence makes it almost impossible to dig or fork up the soil between clumps of perennials. I do not advise growing them in a mixed border. In flower-beds by themselves, or with other spring flowers, such as Wallflowers, Arabis—in beds that are wanted later on for summer flowers—they are undoubtedly best, but then all of us do not practise summer bedding. There is then no question as to whether the bulbs shall be left where they blossomed—out they must come to make room for other plants; they are put on a reserve border as advised above. The way I manage is this: I plant Daffodils in my Rose beds each autumn, and take them up again as soon as they have flowered. There are Pansies among the Roses also, but I find room for the bulbs, for the Pansies, in October, are just neat compact tufts, between which it is quite easy to plant. Those bulbs that I wish to keep I put out, here and there, in odd corners of the garden, where they are not likely to be disturbed. Thus, in spring, I have clumps of Daffodils coming up in all sorts of unexpected quarters, and some of them are never without bloom. It seems a great pity to throw away the bulbs after once flowering, but having no room for them, what is one to do? The odd corners sooner or later become filled up, but there remain always one's gardening friends. There is, at any rate, no excuse for cutting off the leaves: that is really bad gardening, and is bound to lead to disappointing results. As some of the illustrations will show, Daffodils form a perfectly exquisite picture when freely planted in grass. The best way to plant is by using Barr's bulb planter. This instrument

is specially made for bulb planting in grass. It takes out a piece of turf and replaces it after the bulb is put in.

Some first-rate varieties for planting in grass—varieties that will increase quickly—are Emperor (perhaps the finest of all for this purpose), Empress, Horsfieldi, Princeps, Stella and Stella Superba, the Lent Lily (*Pseudo-Narcissus*), Sir Watkin, William Goldring, Minnie Hume, Mrs. Langtry, Waterwitch and others.

DAFFODILS FROM SEED.—Raising Daffodils from seed is slow work, but it possesses a great fascination. Most of the seedlings do not bloom until they are four—some not until they are five—years old. Those who grow Daffodils from seed should endeavour to raise new varieties, for the cross-fertilisation of the flowers may be accomplished with little difficulty. Let me explain briefly how it is done. Before the flower opens the anthers (the pollen-bearing parts of the flower) are cut off so that there shall be no possibility of the flower fertilising itself. When the end of the stigma (the central tube in the flower) becomes sticky and glistens, which it will do a few days after the bloom opens, pollen from another Daffodil is placed on the stigma. If all goes well, in the course of a few days the petals will begin to fade and shrivel, and the seed pod will subsequently swell. And then the disappointment commences. You watch the enlarging seed pod and congratulate yourself on a nice little harvest of hard black seeds within, but, alas! when the time comes, and the pods show signs of splitting, as often as not they contain—emptiness! At least, this has been my experience in what little cross-fertilising of Daffodil flowers I have done. Everything seems to be plain sailing: the “cross” has taken and seeds are fast developing. But appearances are deceptive; often those swollen seed pods have no seeds inside. But some of them are pretty sure to contain seeds, and when ripe, these are hard and black. They are sown at once in shallow boxes with holes bored in the bottom; drainage is provided, and the boxes are filled with sandy soil. The seeds are put in about an inch deep, and the boxes are put in a shady place outdoors. Germination is irregular: seeds I have sown have not sprouted until the following spring. It is as well to keep the seedlings in a cold frame during the winter, but it is not necessary, as the plants are quite hardy. At the end of the second season—that is in July of the year following seed-sowing—the seedling plants are put into other boxes at about 2 inches apart. The year following they may be put on a border, there to be grown until they bloom, allowing a space of 4 or 5 inches between each plant.

The various terms applied to different *Narcissi* is a constant source of confusion to amateurs. Confusion, too, is caused by the indiscriminate use of the words Daffodil and *Narcissus*. *Narcissus* is the botanical name of the flower, the popular name of which is Daffodil. Thus all Daffodils are *Narcissi*, but the term Daffodil is commonly applied only to the trumpet varieties, such as Emperor, Empress, etc.

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WHERE WOOD AND GARDEN MEET. STAR NARCISSI BENEATH FOREST TREES.

Thus we do not speak of the Poet's Daffodil, but the Poet's Narcissus. The three great divisions in the classification of Narcissus are those known as *magni-coronati*, *medio-coronati*, and *parvi-coronati*, and the place of a flower is determined by the length of the central portion (trumpet, cup, or crown, as it is respectively called, in the three divisions). The first division contains Trumpet Daffodils (those with large trumpet or crown), example, Emperor; the second division contains the Chalice-cupped or Star Narcissi (having crowns of middle size); the third division consists of the Poet's Narcissi and others with small crown or cup. Those who wish for a full and detailed classification of the Narcissi should obtain the Royal Horticultural Society's Classification List. There the various subsections are clearly and admirably set out. I should like to draw attention to some of the small-flowered Daffodils. They are very charming little flowers suitable for growing in pots. The Top Petticoat (*Narcissus Bulbocodium*), Angel's Tears (*triandrus*), seen of Spain, minor and minimus are the chief sorts.

SELECTION OF VARIETIES

TRUMPET DAFFODILS.—*Yellow*: Emperor, Golden Spur, Glory of Leyden, Henry Irving, King Alfred, Lord Roberts, Maximus, Obvallaris (Tenby Daffodil), P. R. Barr. *White or creamy white*: Albicans, Madame de Graaff, Mrs. Camm, Mrs. Thompson, Mrs. G. H. Barr, Peter Barr, W. P. Milner. *Bicolor, perianth white or creamy white, trumpet yellow*: Apricot, Duke of Bedford, Empress, Glory of Noordwijk, Horsfieldi, J. B. M. Camm, Madame Plomp, Mrs. Crosfield, Mrs. Walter Ware, Princeps, Victoria, Weardale Perfection, W. Goldring.

CHALICE-CUPPED OR STAR NARCISSI.—Autocrat, Beauty, Blackwell, Chancellor, C. J. Backhouse, Cynosure, Dorothy Yorke, Firelight, Frank Miles, Gloria Mundi, Homespun, Lady Margaret Boscawen, Lucifer, Lulworth, Nelsoni aurantius, Orangeman, Princess Mary, Red Star, Sir Watkin, Stella Superba, Strongbow, Will Scarlet. These have white or primrose perianth, while in most varieties the cup is richly coloured, orange and red.

POET'S NARCISSI.—Almi, Cassandra, Chaucer, Dante, Epic, Homer, Horace, Pheasant's Eye, Ornatus, Poetarum, Virgil, White Standard.

Other favourite small-cupped varieties not included in these three groups are: Agnes Barr, Albatross, Burbidgei, Barri conspicuus, Crown Prince, Dorothy Wemyss, Falstaff, Glitter, Oriflamme, Southern Star, Duchess of Westminster, Katharine Spurrell, Mrs. Langtry, Peach, White Lady.

HYACINTH.—The Hyacinth is less amenable to rough treatment than other popular bulbs; for instance, the Tulip and the Daffodil. One may plant these in the poorest soil and they still reward the grower with a fair return. But the Hyacinth will not put up with such rough treatment. English and Irish growers can produce Daffodils and Tulips as well as the Dutch, but it is not so with Hyacinths. These need a lighter or a sandier soil; at any rate, a soil that home

growers do not seem to be able to provide. Or it may perhaps be the climate that is not conducive to growing Hyacinths. I think no flower disappoints more than a Hyacinth badly grown. Let us plan in well-drained, well-dug soil, with which, if it is heavy clayey stuff, sand is freely intermixed. The bulbs are preferably planted in October and should be put so deep that there are 4 inches of soil above the top of the bulb. Hyacinths look best when massed; so do all flowers, as a matter of fact, but this advice is especially applicable to Hyacinths. Sometimes one sees them planted in grass, but they are not a success there. They make a gorgeous display in spring in flower-beds, and there is such great variety that some charming colour schemes may be arranged, as Messrs. Sutton have demonstrated. They look particularly attractive when arranged along a 3- or 4-foot wide border in small groups, each group being of a distinct colour. Hyacinths are commonly grown for exhibition, and then, of course, extra care is required. A heated greenhouse is necessary to bring the flowers to perfection, and the bulbs must be potted early in September. It is important also to choose the best bulbs, and the best are not necessarily the largest. Size in a Hyacinth bulb is of less importance than weight and firmness, and often the bulbs of moderate size produce the finest flowers. If there are side growths on the bulbs they should be removed. The compost used for potting is made up chiefly of turfy soil with which is mixed rotted cow manure and leaf soil to the extent of one-third of the whole, sand also being freely intermixed. A $4\frac{1}{2}$ -inch wide flower-pot accommodates only one bulb, while a 6-inch pot will usually take three bulbs. A few crocks are placed in the bottom of the pot for drainage, and the bulbs are so potted that only the tops are visible. The soil must be made firm and watered. The pots are then placed out of doors and covered with ashes. Care should be taken not to use ashes fresh from the fire, or the bulbs may be seriously damaged, if not ruined; they should have been exposed to the weather for some weeks. In the course of two months, by which time they will be well rooted, the bulbs are taken from beneath the ashes and placed in a frame from which frost can be excluded if necessary. Mats are placed over the frame until the growths become green. Plenty of air is given throughout the winter during favourable weather, so that growth may be sturdy and strong. Watering needs to be done with great care, and the soil should only be moistened when it appears rather dry. About the middle of January the plants are brought into the greenhouse, where a temperature of 60° is kept up during the day, allowing the thermometer to fall to 55° at night. When on sunny days the thermometer registers 65°, air should be given to prevent the temperature rising too high. The ventilators are closed again early in the afternoon. When the flower spikes are well advanced the plants may be placed in a rather higher temperature if it is necessary to hasten their growth. Similarly, they may be retarded by placing the plants in a cool, shady greenhouse.

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Hyacinth growing in glasses is a favourite method, for then their progress can be watched in the home. It is best to use proper Hyacinth glasses, which are long and slender, but with a wide mouth or top, into which the bulb fits and is kept firm. The glasses are filled with water to within a quarter of an inch or so of the neck of the glass, in which a few pieces of charcoal are placed with the object of keeping the water "sweet." The bottom of the bulb should be just above the water surface. The bulbs are placed in a dark room for three or four weeks; but any half-lighted, airy place will do, as, for instance, under the bed in a room facing north. It is astonishing how soon the roots begin to form. When the bulbs are put in late, say, in early December, I have noticed small roots in two days. If, however, they are put in the glasses in October, as they should be, the roots do not show so soon. When there are plenty of roots, the bulbs are brought into a light place, but not put in full light, as, for instance, in a sunny window, until a few days afterwards. From that time they need all the sunshine they can have, and a window facing south is the best place for them. Fresh air on all possible occasions is necessary if the bulbs are to grow into strong plants, so they should be put out on the window-sill on mild days. During cold weather it is wise to remove the bulbs to the middle of the room for the night. If a greenhouse is available the Hyacinths may, of course, be grown there, and they will probably prove more successful even than when grown in the window. If, however, the greenhouse is not heated it is not wise to keep them indoors while roots are forming; they should be out of doors under a covering of ashes, otherwise, should cold weather be experienced after they are taken from the room where roots were formed they would suffer ill effects from the change. Hyacinths may also be grown in fancy bowls filled with prepared moss fibre, which can be had cheaply. The bulbs are rather more than half covered with moss fibre, and after being kept in a cool, dark, airy place for a few weeks, are grown in a sunny window. Very little water is necessary until the bulbs are rooted, but when they are growing freely it may be required every two or three days. All one has to do is to keep the fibre always moist, though not wet, from the time the bulbs are put in.

The Best Varieties.—There are varieties innumerable. The following are some of the best:—*Single white*: Alba maxima, Her Majesty, Mont Blanc, and Queen of Whites. *Double white*: Isabella, Grand Vainqueur, La Tour d'Auvergne, and Miss Nightingale. *Single rose*: Charles Dickens, Fabiola, Cardinal Wiseman, La Belle, and Lady Palmerston. *Double rose*: Lord Wellington and Noble par Mérite. *Single red*: Garibaldi, Incomparable, Linnæus, King of the Belgians, and Scarlet Light. *Double red*: Empress of India and Koh-i-Noor. *Single blue*: Electra, Grand Lilac, Princess Mary of Cambridge, King of the Blues, General Havelock, and Masterpiece. *Double blue*: Delicata, Garrick, and Van Speyk. *Single yellow*: City of

Haarlem, King of the Yellows, Marchioness of Lorne, Yellowhammer and MacMahon. *Double yellow*: Yellow Goethe and Jaune Suprême.

TULIP.—Ever since the period of the remarkable Tulip mania considerably more than a century ago, when fortunes were hazarded over a few Tulip bulbs, and people were content to gamble and jeopardise vast estates in the vain endeavour to gain possession of a single bulb about which glowing reports had been circulated, the Tulip has claimed a fair amount of popularity. During the time it has certainly had its vicissitudes, but is probably at the present time more popular and in greater demand than at any previous period. Its position in the garden is assured, for neither of the two great families of spring flowering bulbs, as represented by the Hyacinth and Narcissus, enter into competition, whilst there is no other plant that can attempt to take its place. Several reasons for this popularity may be put forward. In the first place, Tulips are easily grown; secondly, unless novelties are wished for, they may be obtained at a cheap rate; thirdly, by the use of a selection of varieties flowers may be obtained out of doors over a period of at least three months, whilst if grown in pots, the season of flowering may be extended by two or three months. Again, few families of plants offer such a wide and brilliant range of colour. Botanists recognise about one hundred species of Tulip, and many are of an extremely showy character, as is instanced by such kinds as *Eichleri*, *elegans*, *gesneriana*, *Greigi*, *præcox*, and *violacea*, but these are not the sorts which are commonly found in gardens.

The garden Tulips have been evolved by many years' of hybridising, cross-breeding, and selection, and several distinct types have been obtained. Broadly speaking, they may be divided into two large groups, early flowering and late flowering, the former being at their best during late March and April, and the latter during May. Connoisseurs, however, are more exacting in their division, and recognise several groups, such as Early-flowering Tulips, Cottage Tulips, Parrot Tulips, Late-flowering, May-flowering, and English Tulips. The latter group is subdivided according to colour, the parti-coloured kinds being included under such headings as *Bizarres*, *Byblœmens*, and *Roses*, whilst self-coloured kinds are known as *Breeders*. These, after remaining constant for some time, break away and become entitled to inclusion in one of the other classes. Darwin Tulips are after the manner of *Breeders*, but are less constant in colour and have usually dark bases.

Both early and late flowering kinds may be used for spring bedding, but the early varieties are more satisfactory for the purpose, because the foliage matures at an earlier date, and there is less risk in lifting the bulbs to make room for summer bedding plants. The May-flowering kinds have the advantage in height and are no less effective than the early sorts, but, after a late spring, they have often to be lifted as soon as the flowers fade and laid in to complete growth and ripening. This frequently leads to the bulbs being unsatisfactorily matured, which makes them peculiarly susceptible to attack by a

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POET'S NARCISSJ IN GRASS AT MADRESFIELD COURT, WORCESTERSHIRE.



fungoid disease. The disease may not be apparent to the casual observer when the bulbs are planted, but the spores may be there all the same, and the owner may receive a rude shock some morning to find the leaves discoloured and the stem decayed. Any such plants should be burnt. Bulbs lifted from an infected area must be carefully ripened, diseased ones destroyed, and the remainder dusted with flowers of sulphur and kept apart from clean bulbs.

The best kind of soil for Tulips is light, well-drained loam, but almost any good garden soil proves satisfactory. They may be planted any time during October or the early half of November, moderately dry weather being more favourable for the work than wet. When planted in beds a space of from 4 to 6 inches may be left between the bulbs, except when they are mixed with spring-flowering plants, such as Polyanthus or Wallflowers, when the distance apart will have to be regulated by those plants. The depth to insert the bulbs must depend to some extent on the condition of the soil. When of a heavy character 3 inches may be deep enough, whilst in light material they may be covered with a depth of 5 inches. Except when new varieties are being raised, propagation is effected by means of offsets. These are often produced freely, and are readily detached at lifting time. The tiny bulbs are planted thickly in beds of good soil, and the flowers are removed as soon as they open.

For growing in pots the early-flowering kinds are most serviceable. Bulbs are purchased in August and September and are planted in pots or shallow boxes. From five to seven bulbs may be placed in a 5- or 6-inch pot when required for decorative purposes. For cutting, however, the bulbs are placed close together in shallow boxes of soil or coco-nut fibre. As soon as potted they are plunged in ashes and once watered. About the end of October the first batch is taken out and introduced to the forcing-house. Little heat is given to commence with, but a fairly high temperature is allowed afterwards.

Selection of Varieties.—Early-flowering kinds (*Single*): Artus, scarlet; Chrysolora, yellow; Cottage Maid, rose and white; Duc van Thol, red and yellow; Keizers Kroon, scarlet and yellow; Ophir d'Or, yellow; Pottebakker, yellow and scarlet; Scarlet Beauty, scarlet; White Swan, white. Early-flowering kinds (*Double*): Blanche Rosette, white and rose; Bride of Lammermoor, white and rose; La Candeur, white; Leo XIII., scarlet and yellow; Rose Blanche, white; Salvator Rosa, rose.

Late-flowering kinds (for a wide selection, a grower's catalogue ought to be obtained): Batalini, yellow; Blushing Bride, white and pink; Bouton d'Or, golden yellow; Bridesmaid, scarlet and white; Dr. Hardy, yellow and red; Dainty Maid, white and lilac; Golden Beauty, deep yellow; Golden Crown, yellow and crimson; Fairy Queen, rose and buff; Friar Tuck, white and red; Gold Flake, orange scarlet; Glow, vermillion; La Panachée, white, crimson; Loveliness, rose blush; Pride of Haarlem, scarlet; Sir Joseph Hooker, scarlet.

CHAPTER XXVIII

A FURTHER SELECTION OF BULBOUS FLOWERS

ALLIUM.—Let me say at once that the Onion is one of the chief members of the Allium family, and the strong, unpleasant odour that distinguishes that well-known root is characteristic also of all other Alliums. For this reason the Alliums can scarcely ever hope to become really popular plants except for grouping in the less accessible parts of the garden, and it is, in fact, there that one or two of them are best placed. The two most generally attractive are the yellow-flowered Moly and the white-flowered neapolitanum. Both flower in May, and in groups in odd corners of the garden they make quite a good display. They thrive in any ordinary soil and spread in a surprising manner, so let the reader not put them too near the choicer plants, but rather where they may be undisturbed and increase to their hearts' content. The white flowers of neapolitanum are often grown for the greenhouse, the bulbs being placed in flower-pots in October and left out of doors under ashes until rooted. Then they are brought into the greenhouse, and will bloom during March and April, or even earlier, if grown in a higher temperature. Another Allium well worth mentioning is triquetrum, with curious three-cornered stems and white flowers.

AMARYLLIS BELLADONNA (*Belladonna Lily*).—In the popular name of this beautiful autumn-flowering bulbous plant we have one of the many instances in which that familiar word "Lily" is misapplied. The subject of this note is quite distinct from a true Lily; indeed, it belongs to another natural order—that of Amaryllideæ—the Amaryllis family. Although not able to compete with its near relative, the greenhouse Hippeastrum, so far as bright colours and gorgeous varieties are concerned, the Belladonna Lily has many pleasing features which endear it to all lovers of a garden. Not the least of these is its fragrance, which has been likened to that of ripe Apricots. The flower-spikes are invaluable for cutting, the long, firm stalks lend themselves so readily to vase decoration. The delicately tinted flowers, varying in colour from almost white to deep rose, are produced in the late summer months before the leaves make their appearance. The bulbs delight in a fairly rich soil in a narrow south border at the foot of a wall or greenhouse, preferably the latter, as then the soil is kept comparatively warm during the winter months from the hot-water pipes inside. This is of importance, as if the production of healthy foliage is not attended to a satisfactory display

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THE PRETTY LITTLE PINK-WHITE WOOD ANEMONE (*ANEMONE NEMOROSA*)
IN THE WILD GARDEN.

of flowers cannot be expected the following year. If the border is at all water-logged, the soil should be removed to a depth of about 1 foot, and replaced with a good layer of brick rubble and a compost of half turfy soil and half leaf mould, being freely mixed in sand. When planting the bulbs, place them 3 or 4 inches away from the wall and 8 inches deep in the soil. The Belladonna Lily succeeds best when disturbed as little as possible, though, naturally, it will occasionally be necessary to replant the clumps to prevent their becoming crowded. During cold weather protective material should be placed round about the leaves. A variety known as *kewensis* has large, rich rose-pink blossoms. Plant in Autumn.

ANEMONE (*Windflower*).—Among the Anemones having tuberous roots are many delightful garden plants, as, for instance, the Apennine Windflower, the Poppy Anemone, the Wood Anemone and the Scarlet Windflower. But let us consider them in their alphabetical order—this, although a prosaic and well worn method, would seem after all to be the best. The Apennine Windflower (*apennina*) first claims attention; this is one of the most charming of all, and when naturalised in rough grass or in open places between shrubs it forms an exquisite spring picture, the whole ground being one mass of the most lovely blue. It thrives best in a shady spot and flowers with the Daffodils. The roots are planted in October. The Greek Windflower (*blanda*) is another charming little spring plant with light blue flowers, but it is not so accommodating as the Apennine Windflower. It is seen at its best only in a warm, sunny spot in the rock garden, for only in the sunshine do its flowers show their full beauty. It is an earlier flower than *apennina*, and often opens in January, though February sees it at its best. The roots of this also are planted in September or October. The Poppy Anemone, with large bold flowers in many shades of colour, from white, through pink and scarlet, lavender and mauve, to purple, is perhaps the most widely grown of all Anemones, and makes a brilliant display in the month of May. The queer, dried-up looking roots are planted in October, preferably in a sunny spot for a display in spring, but if planted at intervals from September to February, a long succession of bloom may be had. It is an easy matter to raise the Poppy Anemone from seed if this is sown, as soon as it is ripe if home saved; if bought, sow in April. A warm sunny border should be chosen for seed sowing and a light soil previously well dug and the surface made fine. When the seed is home saved, it is often difficult to separate, and to obviate this a little sand or fine dry soil is mixed with it before sowing. This ensures a more even distribution of the seed. The Wood Anemone (*nemorosa*) is a native plant that is quite common in the woods and coppices of many counties. I have never seen it finer than in the Yorkshire woods round about Bolton Abbey, where in April it smothers the ground with its charming flowers that are pinkish when opening, but later become quite white. It thrives best in moist shady places in shrubberies or by

woodland walks, and looks very pretty when scattered freely about the rock garden in shady nooks and corners. The roots are planted in autumn. A lovely light blue flowered form called *robinsoniana* with larger flowers than the type should also be planted. The *Scaberrima* Anemone (*fulgens*) is the most brilliant of all the Anemones. A mass of these on a sunny border is a glorious sight in spring. This Anemone is largely planted in Riviera gardens, and there it thrives with a vigour and provides a flower display that it seems never able to do in this country, unless it is in some of the favoured gardens of the south-west. It should be planted in a warm and sunny border, for only in sunshine is this flower seen at its best. Then is it likely to bloom in succeeding years, which it will not do if planted in ordinary heavy soil and an ill-chosen position. The roots are planted in October.

ANTHOLYZA is not unlike a slender *Gladiolus*, and the best is called *paniculata* that flowers in autumn. It has bright red flowers. It is hardy only with special treatment in the way of planting in a warm border and protecting the bulbs in winter with a covering of ashes or fibre. Some growers take up the bulbs every autumn after the leaves have died down and replant in spring.

BRODIAEA (*Star Flower*).—This lovely little spring flower is (should we say happy?) in the possession of three distinct names. One may call it *Brodiaea*, *Triteleia* or *Milla*. *Brodiaea* is the latest, and we are assured the correct one, so *Brodiaea* let it be. It is a most accommodating plant, so easily pleased, in fact, that it is often planted under the shade of large trees, and even there it thrives. The soil round about the trunk itself seems good enough for it. So this is a bulb that everyone should grow. The flowers of *uniflora*, which is the best, are white marked with pale purple-blue. The bulbs are planted in autumn, and once planted are best left undisturbed. This is an excellent plant for naturalising in rough grass or in semi-wild places; in fact, it will grow almost anywhere. It is commonly planted in the rock garden, where its flowers are welcome long before many of the alpine are in bloom. I am inclined to think that, after all, I ought to have called this plant *Milla*, for I have to write of other *Brodiaeas* that come much later, in summer time, and are altogether stronger growing. Two of the best of these are *laxa* and *congesta*, both growing some 18 inches tall and having purplish blue flowers.

BULBOCODIUM.—Probably the reason this is not very frequently grown is that the *Crocus*, which the *Bulbocodium* so much resembles, satisfies most gardeners. Its rosy purple flowers open very early, usually in January. The bulbs are planted in September or October.

CALOCHORTUS (*Mariposa Lily*).—What a pity it is that this beautiful flower is not as hardy as the *Daffodil*; how it would then be sought after! As it is, we are obliged to plant the bulbs in a well drained border at the foot of a warm wall, while some even go so far as to say they are seen at their best only in a frame. If gardeners who wish to grow the *Mariposa Lilies* they must provide the

with a raised bed of soil made up 12 inches or so above the ground-level. During the winter it is usual to protect them by covering with a frame which is removed as soon as growth commences in spring. When the leaves have fallen the bulbs are lifted and dried, and replanted again in October. A soil composed of ordinary soil with which sand and leaf soil are freely mixed suits them best. There are innumerable sorts in cultivation, some of the best being albus, varieties of venustus e.g. oculatus, citrinus and vestal, Purdyi, and pulchellus. The flowers of the Mariposa Lilies are shallow cup shaped and of rich and varied colouring, and open in June and July.

CAMASSIA.—If I say that this plant is commonly known as the Quamash, will the reader be any the wiser? I doubt it. The best is called esculenta, and growing 2 feet high has blue flowers freely produced on a tall spike. This flowers in July, and thrives in soil with which a little peat is mixed, since the roots appreciate moisture. For this reason it is best to plant in a semi-shady spot.

CHIONODOXA (*Glory of the Snow*).—This is one of the most charming flowers of spring. Its blue and white blossoms, something like glorified Squills, are familiar in almost every garden. The most commonly grown and the best is Luciliae. Sardensis is also well worth growing; although it bears a still closer resemblance to a Squill, its flowers are wanting in the white markings that make those of Luciliae so attractive, and they are smaller.

COLCHICUM (*Meadow Saffron*).—The favourite Meadow Saffron that gives its rose-purple flowers in September (and often erroneously referred to as the Autumn Crocus) is the best known of the Colchicums, but it is not the most handsome. There are several others with larger and far more showy flowers. As the blooms are produced without the leaves, it is best to plant the bulbs where there is some ground covering. I have seen them planted among the Tufted Saxifrage which forms an evergreen carpet, and the result was excellent. The Colchicum flowers came through the Saxifrage greenery and again brought colour to the bed. Another good way to plant them is in grass, where, perhaps, they look best of all. Some of the showiest are speciosum, Parkinsoni and Sibthorpi, all with rose-purple flowers. They are disappointing when planted in uncovered soil, for not only do they look bare, but in wet weather the blooms are quite spoilt by the soil splashed up. The leaves form after the blooms are over, and when the leaves fade and fall is the best time to plant.

CONVALLARIA (*Lily of the Valley*).—As everyone knows, the Lily of the Valley thrives best in a shady spot, and it dislikes being disturbed. The long slender roots are known as "crowns," and are commonly sold in bundles. This favourite plant is seen at its best in well dug soil that will provide the roots with moisture in hot weather, for nothing is so inimical to their welfare as drought. Some of the best Lilies I have grown were planted in a border at the foot of a wall facing west. The soil was dug 2 feet deep, and leaf soil, sand and

rotted manure were freely mixed in before planting, which was carried out in October. Each "crown" was set out separately about 2 inches apart, having the top just below the surface. Nothing more was done to them until towards the end of March, when rotted manure was spread over the bed, for no plant appreciates a mulch of this kind more than the Lily of the Valley. Strange that so fair a flower should have an especial fondness for the product of the stable yard! but so it is. If treated in this way, there is every prospect of a splendid harvest of this charming summer flower, of which one can scarcely have too many. A bed planted in this way will not need to be disturbed for four or five years. Then the roots will have spread, and rearrangement becomes a necessity. The forcing of Lily of the Valley has become quite an industry nowadays. Florists use them in hundreds of thousands, and immense numbers of crowns are sold for use in gardens. The simplest way to get Lily of the Valley early is to buy retarded "crowns," i.e. roots that have been retarded in a cold storage chamber. These are naturally more expensive than ordinary roots, but if very early flowers are wanted they are by far the best. They may be had in bloom in ten days by the simplest of methods. All one has to do is to place eight or ten "crowns" in a 5-inch wide flower pot, putting a little moss at the bottom and over the top; they need no soil. If put in a dark wooden case in a hothouse, they start into growth at once, and in a week are exposed to the light. The advantage of retarded "crowns" is that the leaves come with the flowers. By purchasing retarded "crowns" at different seasons one may have Lily of the Valley in bloom almost at any time of the year. To force ordinary roots the method is to plant the "crowns" thickly (say an inch apart) in boxes or pots in September for a Christmas supply, and at intervals of two or three weeks, if a continued succession of bloom is wanted. The roots are put in a cold frame for six weeks, the frame being covered with mats, or they may be placed out of doors and covered with coco-nut fibre. Then they should be brought into the greenhouse and will thrive in any amount of heat and moisture. In potting the "crowns" in pots or boxes the top of each is left above the soil. Light is excluded, and the roots are given an abundant supply of water. When the growth is 2 or 3 inches high the plants are brought to the light. The trouble with early forced roots of Lily of the Valley is that the flowers come before the leaves, but, as I have pointed out, if retarded "crowns" are bought this difficulty does not present itself. In early spring, even with ordinary roots, both come together, so that the gardener should rely upon the retarded roots for early forcing and ordinary "crowns" to produce flowers after Christmas. Fontin's Lily of the Valley is considered to be the best of all, and is much in demand for forcing.

CRINUM.—Several of these handsome flowers may be grown out of doors if they are planted in a well drained border at the foot of a wall facing south or west. The best are Moorei and capense, both with

pale rose-coloured, Lily-like flowers on strong stems. Both are summer-flowering plants. They are perhaps more often seen in the greenhouse, where they are not, of course, liable to be disfigured by bad weather.

CROCUS.—There is little, or at least very little, I need say about the common blue, white and yellow Crocuses that are so familiar. I am sure no one needs to be told how to grow them. Yet one important detail of cultivation is commonly neglected. As the new bulb forms on the top of the old one the Crocus should be deeply planted, say 4 inches deep. To plant them 2 inches deep, as is often done, is to have a poor display in future years. The yellow Crocus is not so easily pleased as the blue and white sorts, for often, while these come up regularly year after year, the yellow scarcely appears at all a second time. I heard recently from a gardener who planted a large number of Crocuses in the three common colours, and while in the second spring there was a splendid show from the blue and white sorts not a single yellow flower was to be seen. The yellow Crocus has another disadvantage in that the sparrows are extremely fond of it, and will often pull the yellow flowers to pieces, while leaving the blue and white blooms untouched. Is it necessary to point out that Crocuses should be planted quite early in August or September, so that they may have plenty of time in which to form roots before they flower? Among the species or wild types of Crocus there are many beautiful flowers, and they have the advantage of blooming quite early in the year, while the common sorts are still asleep or making slow progress. Some of the most beautiful are Sieberi, chrysanthus and Imperati. These Crocuses, the flowers of which are beautifully veined and marked, are admirable little plants for the cold greenhouse when grown in flower pots.

CYCLAMEN.—The hardy Cyclamen are charming little flowers, and they are also most useful, since a selection gives blossom throughout a long season. Coum, with reddish flowers in February, is perhaps the best of the spring sorts. Two others that bloom in March are Atkinsoni and ibericum, with rose purple blossom. Several flower in late summer, and the best of them is the Ivy-leaved Cyclamen (*hederaefolium*). At Kew this is grown among hardy Ferns and Christmas Roses, and together with Anemones helps to provide a most interesting gathering of flowers and attractive leaves all the year round. The Cyclamen appears to enjoy the moist and half-shady conditions that are here provided. The time to plant is in March for autumn flowering and in August for spring blooming sorts, and the roots are put only about 2 inches beneath the soil. Seed sowing is practised as a method of increase, the seed being sown in May in boxes of soil in a frame.

ERANTHIS HYEMALIS (*Winter Aconite*).—This is a charming little bulbous plant, usually the earliest flower of the year, opening its gay yellow blooms in January. Each flower, which somewhat resembles a Buttercup, is produced singly on a stalk 1 or 2 inches high, and

the deeply cut leaves clustering round the stalk just beneath the flower give it a very quaint appearance. The bulbs should be planted in August, putting them about 3 inches below the soil, and disposing them in large groups, since it is only in the mass that the flowers show to advantage. The best place for the Winter Aconite is in grass or in shrubberies that are planted with leaf-losing shrubs.

EREMURUS.—At one time these tall, stately plants were supposed to be tender and suitable only for a few favoured localities. During recent years, however, this supposition has been disproved, for in many gardens remarkable success has attended their cultivation. The principal requirements of the Eremurus are a position in a border or the wild garden, sheltered from north and east winds. A moderately light, well drained soil will suit the plants. Some growers advocate the addition of a little peat round the roots, but this is not necessary if the ground is trenched and dressed with some well decayed manure; leaf soil is also useful. The best time to plant is autumn. The roots are very long and fleshy, spreading out in a circular direction suggestive of a starfish. When planting they must be carefully spread out, and any broken ends cut clean and dusted with charcoal. An ideal position for the Eremurus is between low-growing shrubs. The shrubs serve the double purpose of protecting the growths in spring and furnishing the ground during winter as the foliage of the Eremurus dies off. In early spring we find it necessary to protect the growths, as they develop very early. A few small Yew branches stuck amongst the growths will answer the purpose. I have also seen large Seakale pots used in cold damp districts, with small heaps of coal ashes placed over the roots in winter. The propagation by division of the roots is rather a slow process, and when raised from seeds the plants are some time reaching the flowering stage. For this reason the roots are rather expensive to purchase in any quantity. The three first sorts named below are the cheapest. *E. himalaicus* grows 5 to 6 feet high and has white flowers. *E. robustus* is the hardiest and most reliable in English gardens; the spikes attain a height of 6 to 8 feet or more, the flowers are pink. *E. Bungei* has yellow flowers, spikes 4 to 5 feet in height. *E. Olga* grows 6 feet or more in height and has rosy white blooms. A considerable number of varieties and hybrids have been raised during recent years which will, undoubtedly, become popular when obtainable in quantity at a moderate price.

ERYTHRONIUM (*Dog's-tooth Violet*).—This is a charming little April flowering plant best suited in the rock garden in rather light soil, as, for instance, that with which leaf soil has been mixed. They are scarcely showy enough or vigorous enough for the flower border, but are excellent for the cold greenhouse when grown in flower pots. The common *Erythronium* (*dens canis*) is chiefly grown, and may be had in several colours. Another beautiful sort is *giganteum*, with mottled leaves and pale yellow flowers. *Revolutum* also is well worth growing; its blooms are rose-purple. Plant bulbs 5 or 6 inches deep.

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THE KING'S SPEAR (*EREMURUS HIMALAICUS*), A NOBLE MAY-BLOSSOMING
PLANT FOR ROCK GARDEN OR BORDER.

FREESIA.—Everyone is of course acquainted with this delightful South African bulbous plant that gives such welcome, fragrant blossoms in mid-winter. It is of the easiest possible cultivation. The chief thing is to pot the bulbs early, in late July or early August, if flowers are wanted at Christmas, and for a succession of winter bloom the bulbs may be potted at intervals until the end of September. A compost consisting of turfy soil with which a little leaf mould, dried cow manure and sand are mixed suits them best. The bulbs are placed an inch apart and are just covered with the soil. A darkened frame is the best place for them for six or eight weeks. By that time they will have become well rooted and may be brought into the greenhouse. They should never have a temperature higher than 50°, and may be grown successfully when the thermometer descends to 40° at night. They need little water until well rooted, and then the soil needs only to be kept moist and not wet. The growths are slender and must be given little stakes, otherwise they will fall about and look unsightly. The commonest *Freesias* are *refracta*, yellow and white, and *refracta alba*, white; but lately several new sorts have been obtained and they are of great merit. One of the best is called *Chapmani*, with charming yellow flowers. Another beautiful sort is *Armstrongi*, having rose-coloured blooms, while *Tubergeni* is purplish rose.

FRITILLARIA (*Fritillary*).—The Snake's-head *Fritillary*, which is easily favourite among *Fritillaries*, is a native plant, and may be found growing in meadows near the Thames between Reading and Oxford, and very probably in other parts of the country. There is no difficulty in growing the *Fritillaries*. At Madresfield Court, in Worcestershire, they are freely naturalised in grass and thrive without trouble. They look very charming when planted in this way. In the rock garden, too, they are commonly grown. They thrive in ordinary soil. It is an easy matter to increase one's stock by detaching the offsets that form on the old bulbs. Besides the ordinary Snake's-head *Fritillary*, there are several other charming kinds; for instance, the golden yellow *pudica* and *aurea*; *recurva*, bright red, and *Moggridgei*, yellow. The favourite *Crown Imperial* is one of the *Fritillaries*, its specific name is *imperialis*. This is one of the most striking of all hardy bulbous plants, the flower-stems reaching a height of 3 or 4 feet. There is no difficulty about its cultivation, for it thrives in quite ordinary soil. It should always be grouped, at least half a dozen bulbs being placed in each clump. The bulbs are planted from 4 to 6 inches deep, and early in autumn is the best time to put them in. The drooping flowers are of various shades of yellow and red. Although they are drooping, in each one of them may be found always a drop of water: hence the name sometimes applied of "Angels' Tears."

FUNKIA (*Plantain Lily*).—This is a plant of great and peculiar merit. It has beautiful leaves as well as flowers—in fact, the former are of greater decorative value than the latter, and it thrives best in the shade. The leaves are broad and green or variegated; the

flowers are chiefly lilac coloured. The commonest sort is ovata, and its fine leafage and pretty lilac flowers stamp it as one of the best. Another handsome sort is Sieboldi, with broader leaves than ovata and lighter flowers; the variegated variety of Sieboldi is a great favourite with gardeners. Lancifolia, also worth growing, has narrow leaves, but it is one of the most accommodating, and there are several forms with the leaves variously marked. Tardiflora blooms in October. The Funkias are quite hardy and are planted in autumn.

GALANTHUS (*Snowdrop*).—There is nothing to compare with the Snowdrop as an early flower, but how lamentable it is that nearly everyone should still grow the old small-flowered sort when there are others far more handsome and retaining all the charm of the Snowdrop flower. One of the finest is Elwesi, but, alas! it is not so long lived as the common kind. It is now fairly cheap, so that an annual planting is not a serious matter. Ikarise is another handsome kind. There are many named varieties of the common Snowdrop (*nivalis*), among the best being Imperati, Melvillei and octobrensis, the latter blooming in late autumn. What is there to say about the cultivation of the Snowdrop that is worth saying? One puts in the little bulbs in September, or even in October, about 3 inches deep and leaves them rest to the good will of the wind and weather. How exquisite they are in the grass, and what a delightful display they make even round about the trunk of a large tree!

GALTONIA (*Cape Hyacinth*).—Here is another of those unfortunate plants of which no one seems to know the real name. Is it Galtonia, or is it Hyacinthus? Gardeners call it Hyacinthus, botanists now call it Galtonia. The reader may make his choice. It is a most attractive summer-flowering plant that blooms with the Gladiolus. It throws up a flowering stem some 3 or 4 feet high, and on the upper part bears drooping, bell-shaped white flowers. It makes a handsome display, although the blooms last in beauty none too long. It thrives in ordinary soil, and only needs to be planted in March, putting the bulbs about 4 inches deep. If the garden soil is light, the bulbs may be left outdoors all the winter, but it is, as a rule, safer to lift them, store for the winter and replant in spring when the soil is heavy and clayey. As the lower part of the flowering-stem is bare it is best to plant the Cape Hyacinth among other plants of low growth. It is commonly placed among shrubs, such as Azaleas, and with excellent results.

GLADIOLUS.—So numerous and dissimilar are the garden varieties of Gladiolus that they are divided into several sections. Though at first these were readily distinguished from each other, they are now difficult to keep apart, there being so many connecting links. The original species from which these garden varieties have sprung are natives of South Africa, and some of the earliest have been grown in this country for 150 years or more. The oldest of the groups or sections is that known as *gandavensis*, so named from the earlier

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A WELL-GROWN FLOWER SPIKE OF GLADIOLUS
GANDAVENSIS.

forms having been raised at Ghent, in Belgium. The chief characteristics of *Gladiolus gandavensis* are a long, stout, erect spike closely furnished with well formed blossoms, most of which expand at the same time. In colour the flowers vary from white to deep crimson through various intermediate shades. Next, there is the *Lemoinei* group, in which flowers are in many instances marked with eye-shaped blotches, a feature which has obtained for the members of this section the name of *Butterfly Gladioli*. Full-grown bulbs of *Lemoinei* are smaller than those of *gandavensis*, while it also differs from this last in the flower spike being shorter and less rigid. The flowers, too, do not expand so regularly, hence *Lemoinei* varieties seldom show the well furnished spike usually to be found in *gandavensis*. A notable feature of the *Lemoinei* section is found in flowers of a bluish or purple tint, previously unknown among *Gladioli*. Where a collection is grown a few of these varieties attract at once by reason of their distinct colour. The *Nancieanus* section has become very popular of late years, and improved varieties are continually being sent out. The large size of the individual flowers and their brilliant colours, together with the distinct blotches to be found in many of them, combine to render the *Nancieanus* group a favourite one. Somewhat similar are the forms grown under the heading of *Childsi* and *Groff's Hybrids*.

The early-flowering *Gladioli* form quite a distinct race. In comparison with the others the bulbs are small and the flower spikes weak, but still they make a splendid show during the latter part of June and in July before the others are in flower. A warm sheltered border is particularly suitable to the early-flowering *Gladioli*. They are also much used for greenhouse decoration when grown in pots, about five bulbs being put into a pot 5 inches in diameter. The white variety known as *The Bride* or *Colvillei alba* is grown in thousands in some nurseries for forcing into bloom. One distinct *Gladiolus* is *Brenchleyensis*, a large bold growing kind with bright scarlet flowers. This is of a remarkably good constitution and very cheap, so that it is often used for brightening up shrubberies and similar places.

By some authorities *Gladioli* are classed as hardy bulbs, but it is only in especially favoured localities that they can be looked upon in that light. Frost is fatal to them, so the bulbs are, as a rule, lifted in the autumn and stored in a place free from frost. In a light, well drained soil, the bulbs are far more likely to pass the winter safely than in heavy, damp ground. Even if safe from frost, heavy rains during the winter are injurious, so that by far the better plan is to lift the bulbs in October.

In planting *Gladioli* choose a deep, rich, well drained soil and a sunny yet sheltered position. Even in small gardens a border may generally be found answering to this description. It should be deeply dug, and if necessary some well decayed manure be mixed in. The average flower border is, however, as a rule, suitable for the *Gladiolus*, provided it is well dug. The season of planting depends upon the

locality, but generally it should be done about the third week in May. Authorities are by no means of one accord concerning the depth to which *Gladiolus* bulbs should be planted. This divergence of opinion may be accounted for by the consistency of the soil, as where the soil is of an adhesive clayey nature the bulbs need be planted less deep than in light ground. In heavy soil a good plan is to place a layer of sand around each bulb to prevent an accumulation of moisture there. In heavy soil plant so that there is 3 inches of soil above the top of the bulb; in lighter soils, 4 inches or even 5 inches will not be too much. If planted in beds, 1 foot to 15 inches apart is a suitable distance, or greater space may be allowed and the ground carpeted with *Violas*. Another effective way to plant *Gladiolus* bulbs is to arrange groups of half a dozen or so at intervals along a mixed border. When growing a liberal amount of moisture is beneficial.

As the spikes lengthen they should be staked; plants looked after in this respect are more effective than those allowed to take their chance. These spikes are extremely valuable for indoor decoration, and if cut when but a few flowers are expanded the others will open beautifully in water. After those out of doors have done flowering the leaves will, as the autumn advances, turn yellow, and before a severe frost they must be lifted with the aid of a fork. Then the bulbs are laid on a bench in a cool, dry yet sunny place. In this way they will ripen, when they may be looked over, the tops cut off to within 2 inches of the bulb and any soil removed. The bulbs may then be stored in paper bags and kept dry and safe from frost during the winter.

In lifting the bulbs small bulbs are often seen at the base, called "secured" to the parent by a small root-like substance. This character is far more pronounced in some varieties than in others, affords a ready means of increase. All that is necessary is to take the small bulb and lay them in a box of almost dry sand. They are so minute that without this they will get shrivelled up. In spring, plant them out in a warm border, where, if the soil is kept moist during summer, many of them will reach flowering size the same season. Seeds also ripen readily, and if these are kept until spring and sown in pans or boxes in a frame many of them will bloom in two years. The seed should be sown in a mixture of loam, leaf mould and sand, and covered to a depth of half an inch. Some of the named varieties of *Gladiolus* are expensive, but the cheaper ones are in many cases equally showy. The cheapest of all are mixed seedlings, and these can be recommended. In some of the Dutch bulb farms *Gladioli* are grown by the acre and yield a large quantity of seed. This is sown, and when the bulbs are large enough they are sold as mixed seedlings. It is quite possible to obtain some of the very best flowers in this way, and most of them are sold before they have flowered. In the case of mixed seedlings the different sections are by dealers kept separate from each other. The seedling bulbs are clean and well grown and can be depended upon to flower well.

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BLUEBELLS IN THE WOODLAND.

HIPPEASTRUM (*Amaryllis*).—Very few of the original species or wild types are in general cultivation; the Hippeastrums now so extensively grown are hybrids obtained chiefly by the intercrossing of half a dozen species or so. They are now well known in gardens, therefore it will suffice to say that from a bulb which passes the greater part of the winter in a dormant state, strap-shaped leaves and sturdy, erect spikes are produced in early spring. These spikes are terminated by large Lily-like flowers, varying in colour from pure white to the deepest crimson. By varying the treatment given to the plants, the flowering season may be spread over a lengthened period, but under ordinary conditions their usual season of blooming is during the months of March, April, and May. Though a bulb of Hippeastrum will sometimes produce offsets, which may be taken off and grown on separately, such a mode of increase is very slow compared with that of raising from seeds. The cross fertilisation of the flower and the production of seeds is a simple matter. To fertilise one flower with the pollen of another, the one intended as a seed-bearer should, directly it opens, have the anthers cut off to prevent self-fertilisation. In two days or so the stigma becomes more or less glutinous, then the pollen from the flower chosen as the male parent is transferred by means of a small camel's-hair brush to the stigma of the other. This done, fertilisation soon takes place, and the flower shrivels up in a short time. Kept in a temperature of 55° to 70°, the seed pods quickly swell and, as a rule, the seeds are ripe by the end of July. Provided a greenhouse with a minimum night temperature of 50° during the winter is available, the seed may be sown at once, otherwise it is better to wait until spring. A suitable compost in which to sow the seed may be formed of equal parts turfy soil and leaf mould with about half a part of sand, the whole being thoroughly incorporated together and passed through a sieve. The soil is pressed down moderately firm and made level for the reception of the seeds. On this the seeds are sown thinly and just covered with a little soil. Should they be sown as soon as ripe they will germinate without any artificial heat.

Throughout the winter they are kept in the greenhouse. By the end of February the young plants will be quite large enough to pot singly into small pots, using much the same kind of compost as that in which the seeds were sown. Given a night temperature of 55° the young plants will make such progress that by the month of May most of them will be sufficiently advanced to shift into pots 5 inches in diameter, which will be large enough for them the first season. For this potting the soil must be altogether of a rougher nature, being pulled to pieces with the hand and not sifted at all. About midsummer, they may be placed in an ordinary garden frame out of doors, slightly shaded from the sun. The frame should be shut up before the sun sets. Treated in this way the plants will grow quickly and make good bulbs before winter. As autumn approaches they will show

signs of going to rest by some of the leaves turning yellow. As soon as this is noticed the plants should have all the sunshine possible, with a fair amount of air, while the water supply must be lessened but not discontinued altogether. Before frost the plants must be removed to their winter quarters. The best place is on a stage or shelf in a greenhouse, where a minimum temperature of 50° or thereabouts is maintained. During December and January they will need no water, but after that a little may be given. This, combined with increased sunshine, will cause the leaves to appear, and soon after the flower spikes will show. Many of them will not flower the first season, that is to say, in eighteen months or so from the sowing of the seed, and even those that do bloom are likely to show a considerable improvement the following year.

As soon as the flowers are over, both those that have and those that have not flowered may be shifted into pots 6 inches in diameter, that is, if they require it, for some are much weaker in growth than others, and for these 5-inch pots will be large enough. The same treatment both in summer and winter as that recommended for the previous year must be followed, and the next spring all or nearly all may be reasonably expected to flower. By some cultivators the entire stock is repotted in January before growth recommences, while others, equally successful, allow them to remain undisturbed for two or three seasons. A compromise between the two is the best to follow. The plants should be examined in January, and any whose roots are in an unsatisfactory state must be shaken clear of the old soil and repotted, while those that show a mass of healthy roots are left undisturbed. These are greatly benefited by an occasional dose of liquid manure when growing freely. The amateur with but a single greenhouse may grow the *Hippeastrums* well by keeping them under glass when making their growth, and ripening them in the autumn by standing them on a sunny shelf or at the foot of wall where they get all the sunshine possible.

IXIA.—Probably few flowers can show such great variety of colouring as the *Ixia*; some of them are extremely beautiful, and the wonder is that they are not more commonly grown. One may have green, white, rose, red, almost black, blue, yellow, and *Ixias* of other colours, and every one possessing a greenhouse should make a point of growing them. I have tried them out of doors, but I cannot say they proved a great success, even though they were planted in a warm border at the foot of a wall facing south. They are seen at their best in the greenhouse, and thrive in one that is not heated, although it is perhaps better to grow them in a temperature of 45° to 50° . They are potted in October, turfy soil with which sand is freely mixed being a suitable compost. The bulbs are small and are placed in the flower pots an inch apart. A cold frame that is covered with mats is the best place for them until they are well rooted, which will be in about two months. Then they may be brought into the greenhouse, and if watered with care and kept on a shelf near the roof-glass will bloom in May. One

of the most beautiful of the *Ixias* is *viridiflora*, with exquisite green and black flowers. A flower of green and black colouring always excites my admiration, and seems to me to represent the perfection of colour association. It is scarcely necessary to mention other kinds, for a most varied selection with a wide range of colours may be bought from the florist.

LACHENALIA (*Cape Cowslip*).—These are favourite bulbs for growing in baskets for the greenhouse, and their spikes of flowers, chiefly in shades of orange and yellow, look very beautiful when hanging down. They are, however, equally useful for growing in flower pots. They need much the same treatment as *Freesias*, and are potted or put in baskets in August. They bloom in mid-winter. A compost of turfy soil with a little dried cow manure and sand intermixed suits them admirably. If grown in baskets it is necessary to line these with moss to prevent the soil falling out. The bulbs are placed about 2 inches apart. They remain in a cold frame covered with fibre until rooted, say for two months, and are then brought into the greenhouse. One of the finest of all is called *Nelsoni*, with deep orange coloured flowers. *Tricolor* is the common sort and has yellow blooms.

LEUCOJUM (*Snowflake*).—There are two *Snowflakes* commonly grown, the Spring and the Summer *Snowflake*. The former (*vernum*) is a charming flower opening in March. The comparatively large, white green-tipped flowers are none too common in gardens, yet it is not at all a fastidious plant, although not possessing the adaptability of the *Snowdrops*. Perhaps the best place for the *Snowflakes* is in the rock garden, where, if planted in groups, they are delightful in the early year. The bulbs are planted in autumn 2 or 3 inches deep. The Summer *Snowflake* (*æstivum*) is altogether a larger and taller plant that blooms in early summer. The flowers are white. It is a somewhat untidy plant, and I think at that time of year most gardens can do without it. This, too, is planted in autumn. There is still another *Snowflake* called *autumnale*, although it blooms in summer; it is a dainty little plant with white rose-tinged flowers.

MONTBRETIA.—This is one of the most valuable flowers for the garden in August and September, and is now called *Tritonia*, but for garden purposes we may, I think, still call it *Montbretia*. During the last few years many exceedingly handsome varieties have been raised, they possess more vigorous growth and larger, more richly-coloured flowers, than the old sorts, and are altogether finer plants. Some growers lift the bulbs every autumn and replant in spring, and probably the very finest flowers are obtained under this treatment. I am inclined to think, however, that this is one of many plants that gardeners take more trouble with than they need. The best time to put in the bulbs is in March; they are planted 4 or 5 inches deep and 3 or 4 inches apart, and providing the soil is not heavy, they will not only thrive and flower well, but increase. There is a little garden not far from mine that has a large border filled with *Mont-*

bretias that annually make a brilliant display as August comes round and they remain undisturbed from year to year. When the plants get crowded it is, of course, wise to lift and replant, putting the bulb at a proper distance apart, but this need not be carried out often than once in three years. I have had them planted in my own garden for three years, and each year they have flowered well. A shade or half-shady spot suits them, although they are also quite happy in the sunshine. In fact, I have found the Montbretias so easy cultivation that I would recommend them for every garden. They are so happy in my neighbour's garden (and he, I know, is a "gardener") that they even come under the fence into mine. Is it I wonder, that they are dissatisfied with the treatment meted out to them? or is it to show me how very easily they are pleased, and to beg of me to grow more of them? A few of the best of the newer ones are G. Davison, Westwick and Lord Nelson. But the two old sorts, Pottsi and crocosmiazflora, are still well worth growing where quantity is wanted, for these new varieties are still rather expensive.

ORNITHOGALUM (*Star of Bethlehem*).—What a perfectly delightful common name for a flower! It makes one wish to grow the flower if only for the sake of its name, though I think I might justly say that the Star of Bethlehem is not so good as its name. The common kind (*umbellatum*), with white flowers, is perhaps the best of all. It blooms in May and June. *Nutans*, with green and white blossoms, is also a popular kind. Both these increase so rapidly as to become something of a nuisance in the garden border. They are best planted where their trespassing proclivities will not bring them into conflict with other and choicer plants—towards the front of the shrubbery or in grass on the garden outskirts. I find room for a few in my limited garden space, but I take care to plant them in odd corners where they are not likely to become a nuisance. They are put in in autumn. *Ornithogalum pyramidale* is the most handsome of the lot, and reaches a height of 2 feet or more; the flowers are greenish white. The flowers of the *Ornithogalums* are produced in loose bunches at the top of the stem.

OXALIS (*Wood Sorrel*).—I mention the *Oxalis* to draw attention to the charming native Wood Sorrel (*Oxalis acetosella*), which may often be found growing wild in open woods and copses where the midday sunlight reaches. This is worth planting in masses on the outskirts of the rock garden, where it may be allowed to spread. The little roots are planted in autumn.

RANUNCULUS.—This flower is overshadowed by the Anemone, and is, it would seem, gradually falling into disfavour. The varieties of *asiaticus* provide the double flowers that are usually grown in gardens and are so freely sold in the streets in spring from the flower farms of the sunny south of France. It is easy, as with the Poppy Anemones, to have a long continued display of *Ranunculus* flowers by planting

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BLUEBELLS IN THE WILD GARDEN.



CROCUSES GROWING IN GRASS BENEATH LARGE TREES.

PEACOCK FLOWER

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the roots at intervals from autumn until spring. There is no difficulty about growing them if the roots are put in well dug ground about 2 inches deep. After the blooms are over and the leaves have faded, the roots are taken up, dried, and stored until planting time. The Turban varieties in many colours are the most popular.

SCHIZOSTYLIS (*The Kaffir Lily*).—Every garden that possesses a little border at the foot of a south wall ought to have a few roots of the Kaffir Lily, an autumn- and even winter-blooming plant that bears more resemblance to a *Gladiolus* than a Lily. It bears bright red flowers on a tall stem, much in the way of a *Gladiolus*, in October, but in a mild winter blooms are obtained much later also. The roots are planted in March, and during the summer need plenty of water. The soil, too, should be well dug 2 feet deep so as to keep the roots moist during the hot weather. *Coccinea* is the only sort.

SCILLA.—The chief favourites among the hardy Squills are *Scilla sibirica* and *bifolia*, both having pretty little blue flowers that open in early spring. The common Bluebell is *Scilla nutans*. The Spanish Bluebell, *Scilla hispanica* (*campanulata*), blooming in May, is a handsome flower that may be obtained in several colours, white, blue, pink, etc. Scillas thrive in ordinary garden soil. The bulbs should be planted in August or September some 4 inches deep. There are numerous Squills, some of them very attractive, suitable for the greenhouse only.

SPARAXIS.—This is a beautiful bright-flowered plant, easily grown and suitable for the greenhouse; the flowers are of rich and varied colouring. The bulbs are potted in October in turfy soil with sand intermixed, and are placed about an inch apart. They are kept in a cold frame and covered with coco-nut fibre for about two months. Then they may be brought into the greenhouse and will flower in late spring. The flowers are variously and brilliantly coloured. A few of the best are tricolor, red and yellow, Fire King, red and black, and Garibaldi, crimson.

STERNBERGIA.—This bulbous plant bears handsome flowers in autumn, and much resembles the Autumn Crocus. It is rather fastidious, and to ensure success one must plant the roots in well drained soil with which lime rubble has been mixed. The chief sort is *lutea*, with yellow flowers in September. Its appearance is not improved by the absence of leaves at blooming time. Planting is done in June or July.

TIGRIDIA (*Peacock Flower*).—These brilliant-flowered plants are not generally grown, probably because they are not very hardy, partly also because the blooms last such a short time, although this shortcoming is atoned for by a succession of flowers. They are best suited by a well drained, sunny border of sandy soil at the foot of a wall facing south. They are planted in March and flower in late summer. It is usual to lift the bulbs when the foliage has died down in the autumn, but at any rate, in the southern counties, if covered with

ashes they may be left undisturbed. The gorgeously coloured varieties of *Tigridia Pavonia* are the best.

TUBEROSE.—This is one of the chief favourites among white flowers and is an accommodating plant, since it may be grown in a hothouse if wanted in bloom quickly, or in a cool greenhouse for later bloom. The bulbs arrive late in the year, in November, and should be potted as soon as received. A 6-inch wide flower pot will take three bulbs. A soil consisting of turfy soil with a little sand and leaf mould in mixed suits them, and the bulbs should be almost covered. After potting they are commonly placed under the stage of the greenhouse for a few weeks until growth commences, but a better place for them is in a cold frame. When leaves are seen to be forming the grower may, if he wants early flowers, plunge the plants in fibre in a hothouse and keep the roots moist, or they may be grown in the greenhouse in the ordinary way. If the bulbs are potted at intervals of a few weeks there will be a succession of blossom throughout the spring months.

VALLOTA (*Scarborough Lily*).—This is one of those plants that the cottager often grows better than the professional gardener; specimens may often be seen growing in cottage windows. One of the chief aids to success is not to disturb the bulbs so long as they are in a thriving condition. The flowers are produced in August and September. After the blooms are over the plant must be still freely supplied with water, for it has to finish growth. During the winter the soil is kept rather drier, but as this is an evergreen bulb, it must never be dried off. A sunny window or a shelf not far from the roasting glass is the best place for it. Its flowers are bright red, and resemble those of the *Amaryllis* in form. The compost best suited is one of turfy soil with sand and a little rotted manure mixed in.

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CHAPTER XXIX

THE USE AND VALUE OF ARTIFICIAL MANURES

THE value of artificial manures is now so well established, and the early prejudice against them so nearly dead, that little argument in favour of their use need be put forward. Nevertheless, it may be well briefly to point out the relation of artificial manures to the natural stable or farmyard manure, against which no prejudice ever existed. Moreover, an air of mystery still hangs over artificial fertilisers, and unless the user understands exactly what they contain, and the precise reason for applying them, he is at the mercy of every quack who has a nostrum to offer. Fortunately, the science of manuring is quite simple, at least so far as general principles are concerned, so that it is not difficult to understand the why and wherefore of artificial manures. A plant is built up of substances taken out of the air and out of the soil; the former are out of our control, whilst the supply of the latter in suitable quantities is the practical problem of manuring.

Plants take up quite a lot of different substances from the soil, but the only ones we need trouble about, as likely to be present in smaller quantities than the plant requires for perfect growth, are: nitrogenous matter, phosphoric acid, potash, lime. This is an important point to bear in mind, for the value of every manure depends upon the amount and proportion of these four substances present in it, and not upon the strength of its odour, the claims of its manufacturer, or the money asked for it.

Let us for one moment consider farmyard or stable dung, and the reasons for its value as a manure. It is easy to see that dung must contain all the essential substances required by plants. It is itself composed of plant remains. When we apply dung to the ground we put into it that which was taken out of the soil on which the crops grew that supplied the food and litter to animals. Does the manure contain them in the same proportions as they exist in the food of the animals? No, because the animal retains nitrogenous matter to form flesh, lime and phosphoric acid to make bone, so that potash is the only important ingredient that is not to some extent abstracted by the animal. In addition to this loss, we have to remember that in the dung the nitrogenous matter is very liable to fermentation, with the result that ammonia is formed and given off into the air. In general practice, it does not often happen that much more than one half of the nitrogen in the food of an animal finds its way into the dung cart. Ordinary dung, therefore, while containing every-

thing that the plant requires, does not contain them in the proportion required, so that if we supply a full dose of nitrogen we are probably giving more phosphate and considerably more potash than we should be required, whereas if we only supply sufficient potash, we are probably starving the crop as regards nitrogen, and, to a less degree, phosphoric acid.

The first great use of artificial manures is in supplementing deficiencies and thereby adjusting the proportions of the important ingredients so that they shall best suit the needs of our crops. As would be expected from what has just been said, artificial manures show the best results where the soil has not been manured, and where there is a consequent lack of the four important plant foods. On soils that have been very heavily manured and where all the plant foods are present in large amount, little or no effect will be produced by using artificial manures. It is also found in practice that where only moderate dressings of dung are used the effect of potash is very little, as a rule.

Can artificial manures be used to take the place of dung entirely? No, because a bulky manure like dung possesses other properties besides that of supplying the plant with food. A very important use of the bulky organic matter of dung is that it retains water and keeps the soil "open." If the soil is deficient in organic matter (humus, as it is called) it suffers badly from drought, and if of a clay nature it is so stiff as to be unworkable. On a very sandy soil a bulky manure is required to prevent, as far as possible, drought in summer time, and on a very heavy clay it is required to make the soil more "open." But leaves and general rubbish made into a compost will serve equally well for this purpose, and the fertilising properties may be added in the form of artificials. The whole question is one of cost; if you have a large amount of dung at disposal—say, half a load for the rod—money spent on artificials other than lime would probably be wasted; if you have half this amount of dung, it will probably pay you to use artificial manures; if you have little or no dung available you *must* use compost and artificials unless you have virgin soil and you wish to exhaust it. Generally speaking, artificials are cheaper to buy than dung, so that it is economical under these circumstances to buy only a moderate allowance of dung and supplement with artificials.

Let us now consider the various artificial manures which may be obtained, and discuss their relative merits and the particular purposes for which they are best suited.

NITRATE OF SODA.—Of all artificial fertilisers, probably none is of greater value than nitrate of soda. This substance, as its name indicates, only supplies one of the four important plant foods, viz. nitrogenous matter. We must at this point inquire into the nature of nitrogenous substances, because they differ considerably in composition, and this difference is the key to the understanding of their use. Nitrate of soda is a crystalline substance very easily dissolved

in water. If a very dilute solution of this substance be given to any young growing plant an immediate effect is noticed, an unusually rapid growth being observed for a few days, after which further growth becomes again normal. No other nitrogenous substance gives such a rapid and short-lived action, and the conclusion is that in a nitrate we have the nitrogenous matter in the form most readily taken up by the plant. We need not here go into details of the experiments and observations that have been made, but merely state that it has been established that nitrate is practically the only form of nitrogenous matter that plants can take up, and that all other kinds have to change into this before they are of use to the plant. A knowledge of this fact is of the utmost importance, for upon it the proper regulation of the food supply to the plant depends. We have already learned that nothing acts so quickly as nitrate, so that if we want to give seedlings a good start, help freshly transplanted plants to pick up, or rush a crop through an attack of blight, we cannot do better than give them some nitrate of soda. It is a most powerful fertiliser, containing from twenty to thirty times as much nitrogen as dung, and it must be used carefully. Much damage may be done by giving too much, and care should be taken to keep it off the leaves when using in the solid state. As it is so quickly taken up by the plant only a little at a time must be given, not more than 2 lb. per square rod, and to make it easier to distribute it is advisable to mix with three or four times its weight of dry earth or sand before sowing. For small beds a dilute solution of about one 1 oz. in 2 gallons of water, distributed over a square yard would be suitable.

SULPHATE OF AMMONIA.—The nitrogenous fertiliser coming second to nitrate of soda in rapidity of action is sulphate of ammonia. As has been stated already, the ammonia has to be converted into nitrate before being taken up by the plant—at least, the great majority of it is so converted, but recent experiments seem to indicate that plants can take up ammonia directly—so that some little delay is experienced, and as the whole of the ammonia is not at once converted into nitrate it means that the effect of sulphate of ammonia is not noticed quite so quickly as in the case of nitrate of soda, but when it does commence to act the action is continued longer. Nevertheless, the action of sulphate of ammonia is very rapid compared with that of many organic manures, and it is used for stimulating growth at critical times, just in the same way that nitrate is used. The change from ammonia to nitrate is brought about by bacteria in the soil, and the rapidity with which they accomplish it depends upon warmth, air, and a sufficient amount of lime in the soil.

SOOT.—Soot is a most valuable fertiliser, containing about 4 per cent. to 5 per cent. of nitrogen, in the form of sulphate of ammonia, and as sulphate of ammonia contains about 20 per cent. nitrogen, it works out that soot contains from 20 per cent. to 25 per cent. of sulphate of ammonia. Four or five times as much soot may there-

fore be used as sulphate of ammonia—the quantities of the being about the same as those given for nitrate of soda. As soot is liable to contain harmful substances, it is best to let it be exposed to the air—but not to rain—for a few weeks before use. Soot has the additional value of keeping slugs off, and in virtue of its power of absorbing heat, raises the temperature of the soil, stimulating growth—especially if used in spring.

HOOF AND HORN.—Another nitrogenous manure of the high value is hoof and horn meal. This material contains about the same proportion of nitrogen (15 per cent.) as nitrate of soda, but none of it is in a form which can be taken up by the plant; it must first undergo the process of nitrification, or conversion into nitrate. The rate at which this takes place depends, in addition to the warmth of the weather, etc., mentioned in the case of sulphate of ammonia, upon the fineness to which the shavings are ground. The finer the material the more rapidly is it converted into plant food. The great value of this manure is that the fine powdery portion very quickly becomes ready for use, the change taking place more slowly with the larger particles, so that a continuous supply of plant food is maintained and not, as in the cases previously mentioned, only just after the application. If mixed with lime the rapidity is increased, and this is a very good practice to adopt. Sulphate of ammonia or soot must not be mixed with lime, or loss of ammonia ensues, but with an organic manure like hoof and horn the nitrogenous matter is fixed and no danger of loss is incurred. Hoof and horn meal is particularly useful for fruit bushes, tomatoes, potting plants, etc. The danger attending overdoses of the previously mentioned mineral manures does not occur here—it is perfectly safe, and provided there is plenty of lime in the soil it is certain in its action. Many of the market-garden farmers growing at the Covent Garden Market will buy this article at almost any price, they regard it as indispensable for cabbages and all green stuff. From 2 lb. to 4 lb. per rod may be used if really heavy crops are desired. See that it is finely ground, but not all the same size—from a fine powder to bits half the size of a threepenny piece—so as to ensure a continuous supply of food which is so characteristic of this manure.

REFUSE MANURES.—Another good nitrogenous manure is shoddy or wool waste. This contains about half the amount of nitrogen as hoof, it is, moreover, bulky in nature, and this is advantageous. It is a favourite with hop growers, and is a mild acting, safe manure.

Manures similar in action to these are dried blood, fish meal, meal or flesh meal, rape dust, castor oil meal (the refuse left after the oil has been extracted from the seeds), etc. These are all useful manures with steady action, not sudden, but lasting. All organic manures can safely be put in the ground in autumn as they are not washed out by rain.

LIME.—We have mentioned two of the uses of lime already, so that we may now go on to consider the various uses of this extremely

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CLIPPED YEWs IN A COTTAGE GARDEN. AN EXAMPLE OF
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important substance. It is a necessary plant food, but if that were all, we should not have much need to talk about it in connection with manuring, for practically all soils contain sufficient lime in some shape or form to supply what the plant requires for food. Of much greater importance to us is the necessity for having plenty of lime in the soil capable of combining with the acids formed by decomposing organic matter. If the soil becomes acid, it becomes sterile—nothing will grow except a few plants like Sorrel and Heath. The bacteria which do the necessary conversion of other forms of nitrogenous matter into nitrate cease work unless there is a sufficiency of lime or chalk present. Let me try to remove a difficulty which very generally prevails about this question of lime in the soil. To be of any use the lime must be "free," that is, not combined with an acid. If it has once combined with an acid it cannot combine with any more, and it is therefore incapable of neutralising the soil acids. Now a manure I shall speak of again shortly, called superphosphate of lime, is often thought to supply both phosphoric acid and lime to the soil. Now "super" means "extra," and the extra amount of phosphoric acid means that not only has the lime been neutralised by the acid, but that there is actually present an excess of acid. So far from superphosphate supplying lime to the soil, it actually supplies an excess of acid which takes up a considerable quantity of whatever lime may be present in the soil. This point should be remembered; also that sulphate of ammonia is acid, and that the use of either or both of these manures is an additional reason for using lime on any but chalky soils. In addition to neutralising acids, stimulating bacteria in the liberation of plant food from organic matter which the plant cannot directly feed on, and being itself a food, lime has a wonderful effect on stiff clay soils, rendering them much easier to work because it makes the greasy clay become granular. There is no doubt that the beneficial effects of lime are far too little recognised, and that in a very large number of gardens where crops or flowers do not seem to thrive, it is not because they have not sufficient dung or other manure, but simply that through lack of lime the plant is not able to make use of the store of material in the soil. It is probably no exaggeration to say that throughout the country at large, at least three out of our garden soils are badly in need of lime. To determine whether a soil does require lime take a handful and place in a basin; add sufficient water just to cover it. When air bubbles have ceased to come out of the soil add about half an ounce of spirits of salts. If the soil contains a satisfactory amount of chalk, a very distinct effervescence will be produced. If no gas is seen bubbling up, or if only one or two little streams of bubbles are seen, then your soil requires lime. For heavy soils quicklime is best—about a stone (14 lb.) to the rod. This is best spread on the ground just before autumn digging. On sandy soils lime is not so suitable as chalk. Unfortunately, chalk is very difficult to break up into a powder, and it is usual to spread it in lumps

in autumn and let the winter weather help to break it up. Two or three stones per rod may be used, or more, if it costs nothing. If you find that your soil is deficient in lime as shown by the test described above, there is probably no other treatment will give a better result than a dressing of lime, in addition to the usual manuring.

SUPERPHOSPHATE.—Next in order of importance to nitrogenous manures and lime comes phosphoric acid. There are a number of manures supplying this important food, and here again, as with nitrogenous manures, we have the phosphoric acid assuming different forms, so that in some cases the manure is very quick acting, whereas in others it is much slower. The quickest acting phosphatic manure is superphosphate. Because it is quick acting and soluble in water, it is always applied immediately before the plant requires it—usually therefore, in spring, when growth begins. It would be idle to give a list of plants which would benefit by the application of phosphatic manure—it would be difficult to name a plant which does not respond to it. For garden use a suitable amount to apply is from 4 lb. to 5 lb. per rod. It may be scattered on the surface and raked over when manuring bushes, trees, etc., or sown in drills under the seeds in beds. On fairly light soils this is probably by far the best manure to use, but on clay soils I very much prefer basic slag.

BASIC SLAG.—Basic slag contains phosphoric acid in such a state of combination that it is incapable of being dissolved in water. Now plants have no means of eating solid substances—they have to take up all their nutriment in the liquid form. How, then, does the plant get phosphoric acid from a substance which will not dissolve in water? Simply because the phosphate, though insoluble in water, will dissolve in the very dilute solutions of acids formed in the soil or brought down out of the air by the rain. Now, fine sugar dissolves more quickly than coarse sugar, so that by grinding the slag very finely we help the solution of it in the soil. Slag is generally ground so finely that 80 per cent. of it will pass through a sieve having 10,000 meshes to the square inch. It is advisable when using slag to get it into the soil in the autumn so that it may be working its way about in the soil water during the winter. Very little loss need be feared. Slag, besides containing phosphoric acid, contains a small quantity of lime still free for neutralising acids, so that, unlike superphosphate, this manure actually does supply lime to the soil. Slag is somewhat cheaper than superphosphate, and rather larger doses are usually given—say, 6 lb. to 8 lb. per rod. Only one case occurs to me in which it is inadvisable to use any phosphatic manure—or, if used it must be in quite small amounts—and that is when lawns are required to be free from clover. Plants of the Pea and Bean family—to which order clover belongs—are mostly very much influenced by phosphates, and they grow so remarkably when thus manured that a lawn which previously hardly seemed to have any clover will presently appear full of it. Of course, where grass is required for feeding purposes, this growth of clover is

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very desirable, and a good dressing of slag on heavy land, or superphosphate on light, is a splendid thing.

BONES.—Various forms of bone preparations are used :—bone meal (of various degrees of fineness), steamed bones (the glue having been removed in this process), dissolved bones (treated with strong acid, so that the product resembles superphosphate), etc. Ordinary bone meal is a very useful manure. It is steady and lasting in action, and can be very suitably employed in potting plants. It is very easy to put too much of a concentrated fertiliser into a small flower pot, and easily soluble manures, like nitrate of soda, sulphate of ammonia, and superphosphate, if used in excessive quantities, prove themselves to be injurious. No fear need be felt in using organic manures, and therefore they are much safer to use when potting. Bones contain a certain amount of nitrogenous matter, and thus supply two plant foods.

GUANO.—Guanos may here be considered, as their principal constituent is generally phosphate, though they contain considerable quantities of nitrogenous matter and potash—thus constituting what is termed a "complete" manure. Guanos are beautifully mild in action, and yet possess all the concentration and power of the "chemical" manures. For general use in the flower garden guano would be hard to beat. If one is prepared to go to the trouble of manuring with superphosphate and sulphate of potash before planting, and then top-dress once or twice with nitrate, it is probable that we should pay less for our manure, but a good dressing of 5 lb. or 6 lb. of guano per rod will supply everything the plants can want, and there is no fear of doing any damage.

POTASH MANURES.—As we have already said, when dung in fair quantity is used, potash manures do not usually give a very big return. On sandy soils potash does very much better than on clay soils, and certain crops require very much more than others; Onions, for example, respond to potash remarkably even when dunged; Gooseberries are also very responsive to potash, and to a less degree also the plants of the Pea, Bean and clover order, and Potatoes. There are three potash salts used as manures: sulphate of potash, muriate of potash, and kainit. The latter contains compounds of magnesia and common salt in addition to potash compounds, and for garden use is not so suitable. When kainit is used, it should be put on the ground in the autumn to wash some of the impurities away, but sulphate and muriate of potash are used in spring. For the particular plants mentioned, about 1½ lb. of sulphate of potash per rod would be a good dressing, unless, of course, a guano is being used which contains a fair amount of potash, in which case only half this amount should be used.

SUMMARY.—We have now reviewed the principal manures in use, and we have discovered that they owe their properties to the nitrogenous matter, phosphoric acid, lime, or potash, which they contain, and also to the particular form in which this ingredient is present. We have seen that in each of the four kinds of plant food contained in

different manures there is a soluble or rapidly acting form and an insoluble or slowly acting form. We have seen that both kinds have their uses, that the quickly acting manures put into our hands a means of forcing growth just when we like, but that their use must be attended with care, or we may damage our plants. We have also seen that such fertilisers are used only at the time that their action is required by the plants or seeds. In the case of insoluble manures, or those which have to undergo some change before they are ready for the plant to take them up, we have seen that they are slower and steadier in action, that they are quite safe if used in excessive quantities, and that they are commonly put in the ground some time before the crop which they have to feed is sown. These are the main principles to bear in mind when drawing up a scheme for artificial manuring, and we will now proceed to consider various garden crops and indicate how these principles may be applied. It must be remembered that the nature of the soil and a number of other varying conditions would modify the requirements in different districts, so that it would be absurd to set the following examples forth as anything more than suggestions which each grower should modify for himself.

APPLICATION TO PRINCIPAL GARDEN CROPS

Asparagus.—There should, first of all, be a dressing of farmyard manure at the rate of about 2 tons per rod. Each year a light dressing of dung should be given very early in spring or at the end of winter, supplemented with 4 lb. to 5 lb. superphosphate and 2 lb. to 3 lb. of kainit. When kainit is used, no salt need be given. Two top-dressings of nitrate of soda should be given—1½ lb. in April, and 2 lb. in May. This manuring is, of course, for the benefit of next year's cutting.

Beetroot.—Apply farmyard manure in winter or spring in preparation for Beetroot. Basic slag at the rate of 5 lb. per rod should be used if the land is dunged in winter; if the manuring is left until spring, 3 lb. to 4 lb. superphosphate would do better. Nitrate of soda as a top dressing should be given at the rate of 1½ lb. per rod at the time of sowing and another similar dressing when the plants are singled out.

Cabbages, etc.—Plants of the Cabbage family generally follow a garden crop that has been manured, and there is no advantage in giving another dressing directly to them. In fact, those like Broccoli and spring Cabbage, which have to stand the winter, will do so all the better if not dunged. A dressing of 4 lb. to 5 lb. hoof and horn meal when preparing the ground for Cauliflowers, Broccoli, Cabbages, Savoye or Brussels Sprouts, will go a long way towards ensuring a good crop of first quality plants. In addition to this, some phosphate in the shape of basic slag or superphosphate should be given, say 4 lb. to 6 lb. per rod. If preferred, top dressings, two or three in number, of nitrate of soda or sulphate of ammonia may be substituted for the hoof and horn meal.

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A BORDER OF WALLFLOWERS AND FORGET-ME-NOTS.

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Lettuces.—If the soil is inclined to drought, summer Lettuces should have dung, otherwise and for winter lettuces dung is not required in a good soil. About 2 lb. superphosphate should be used. Nitrate of soda is excellent for Lettuces, as it causes them to be extremely tender and brittle. About $1\frac{1}{2}$ lb. should be used for each dressing per rod (30 $\frac{1}{2}$ square yards), and the first dressing should be given at sowing (for summer lettuces) and again when singling. For winter lettuces the nitrate should be applied only in the early spring.

Carrots.—Best grown after a crop for which the ground was manured, and then given only artificial manures. Before sowing, work well into the soil 3 lb. or 4 lb. of superphosphate, or if work is started early still better use 5 lb. or 6 lb. basic slag, and about 1 lb. sulphate of potash. Do not omit the potash, except on the stiffest clay soil. If the soil is in good condition very little nitrogenous manure need be given. One lb. of nitrate of soda per rod would be ample.

Parsnips should be treated in just the same way as Carrots.

Celery.—Very large dressings of dung are desirable for this crop. If dung is difficult to obtain, well rotted compost of dead leaves, etc., should be used. Supplement the bulky manure with 5 lb. to 6 lb. basic slag (on a heavy soil), or 3 lb. to 4 lb. superphosphate (on a light soil). A good way of enriching the soil in nitrogen would be to use one of the moderately bulky refuse manures mentioned. One and a half lb. of nitrate of soda per rod will ensure the Celery being tender.

Potatoes.—This is one of the crops most requiring dung, and the Potato patch should receive a good dressing before anything else. In addition, a full dressing of artificials will in most seasons pay. If the soil is inclined to be short of lime it would be well to work a stone (14 lb.) of lime in at the time of dunging, or at least to use basic slag (which contains lime) as the phosphatic manure. Do not omit to use 1 lb. of sulphate of potash at planting, and, on light soils where there is sufficient chalk, 2 lb. to 3 lb. superphosphate at the same time. Either sulphate of ammonia or nitrate of soda may be used as a top dressing along the rows after planting and again at earthing up.

Onions.—After a dressing of farmyard manure, give 3 lb. to 4 lb. of superphosphate for spring or summer Onions, 5 lb. to 6 lb. basic slag for winter Onions, and 1 lb. sulphate of potash. Top-dress in both cases in spring with a little nitrate ($1\frac{1}{2}$ lb. per rod). For Leeks no top dressing of nitrate or the use of any nitrogenous manure is necessary.

Peas and Beans.—See that the soil contains a plentiful supply of lime. Lime greatly improves the flavour of green Peas. Unless the soil is good it would be well to have some ordinary manure under them, but the use of basic slag (4 lb. to 5 lb. per rod) and sulphate of potash (1 lb. per rod) will help towards a heavy crop.

Fruit Trees.—Basic slag and hoof and horn meal for general purposes cannot be beaten. These should be stirred into the soil round the trees very early in the year.

CHAPTER XXX

HEATING SMALL GREENHOUSES

THE question of heating small greenhouses is one that has an interest for an increasing number of amateurs. While it is true that many beautiful flowers can be grown in a cold greenhouse, the use of heating apparatus greatly increases the variety of plants that may be accommodated. In selecting the kind of apparatus the question as to what temperature is to be maintained in severe weather must be decided. Is it wished merely to keep out frost or is it desired to keep the house warm the winter through? The former may be accomplished with the aid of a "heater" such as is shown in one of the accompanying illustrations. I know of nothing better for the small greenhouse—one, say, of such dimensions as 9 ft. by 6 ft. In fact, such an apparatus will keep frost out of a larger greenhouse; it may be obtained in various sizes to suit large and small houses. When, however, it is desired to keep the house warm throughout the winter months, to maintain a temperature of, say, 50° with certainty in the coldest weather, it is best to have a properly installed boiler and hot-water pipes. This is, naturally, much more costly. With an oil heater, as illustrated, which costs about 15s. for a greenhouse 9 ft. by 6 ft., such plants as Geraniums, Dahlias, Calceolarias, Cinerarias, may be safely kept through the winter. Perpetual-flowering Carnations, Geraniums from cuttings rooted in February, and Chinese Primulas may then be had in bloom the winter through.

An amateur who has used this heating apparatus with great success in a small greenhouse thus gives his experience of its working:

"Thousands of amateur gardeners have a small greenhouse in which they wish to keep half-hardy plants, such as Geraniums, Calceolarias, Cinerarias, Tree Carnations, etc., throughout the winter without going to the trouble and expense of a coke stove and hot-water pipes. There are many oil heaters now on the market which will answer the purpose admirably. They are cheap, clean, and convenient. Autumn is the time to think about the choice—not after sharp frost has come. The most satisfactory I have found after many trials is one of the form shown in the illustration on page 416. I have it in use every week throughout the winter months. I have used one for several years now and have never had a mishap through smoke or fumes. It is fitted with a duplex burner taking an ordinary lamp chimney. The fumes passing through the two radiating pipes and down the sides become condensed, and no smell whatever is apparent.

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THE WINTER-FLOWERING BEGONIA GLOIRE DE LORRAINE.



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An evaporating tray placed at A keeps the air nicely moist, whereas an ordinary lamp would dry the atmosphere of the house too much. The two chief points about its management are: (1) Keep it perfectly

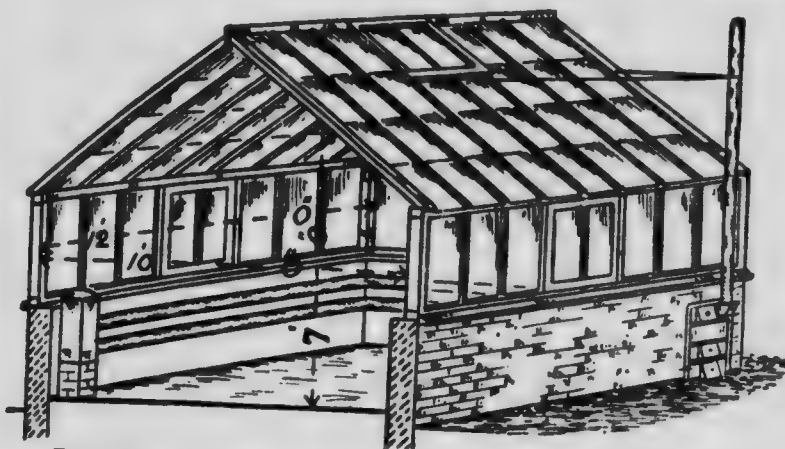
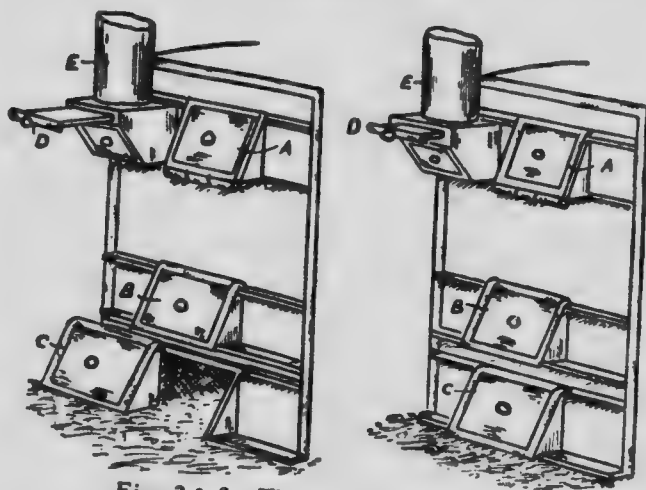


Fig. 1.—Small greenhouse (840 cubic feet) heated by one flow and return pipe.



Figs. 2 & 3.—The front of the boiler.

A, Fuel door; B, Furnace door; C, Ashplace door; D, Damper; E, Smoke pipe.

clean; the wick should be wiped over with a piece of rag or soft paper every time it is used, and all parts of lamp cleaned once a week. There will then be no smell. (2) When lighting, turn the wick up to the fullest extent and leave for five minutes, then when the lamp is well

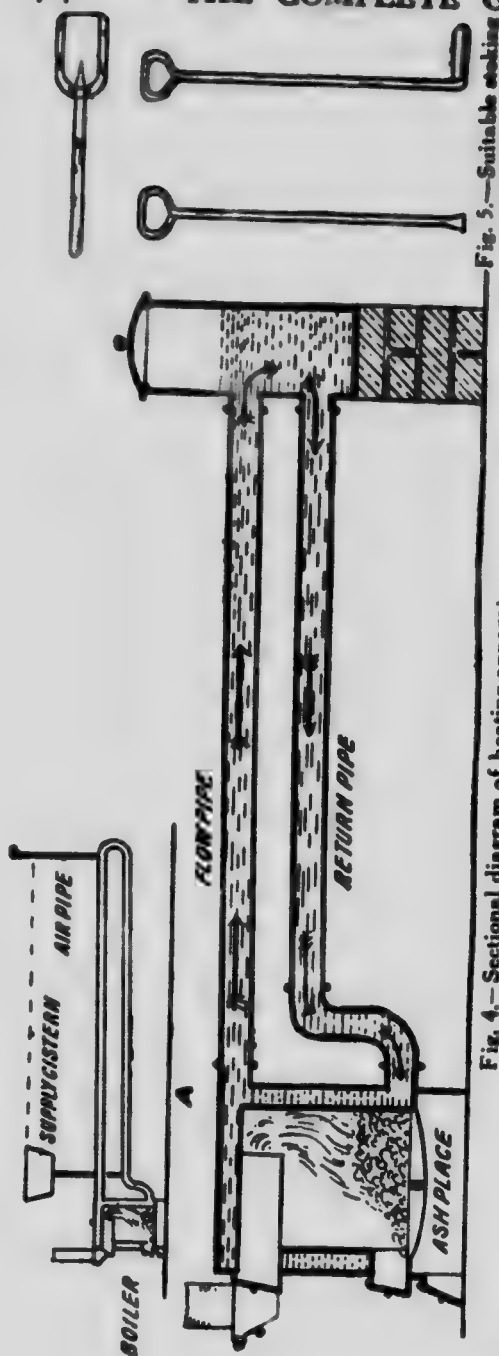


Fig. 4.—Sectional diagram of heating apparatus.

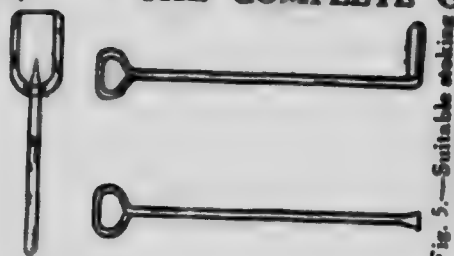


Fig. 5.—Suitable stoking tools.

heated turn it down to the required height, and there will be no fear of its working up and smoking during the night—it may safely be left for twelve hours. Such a lamp will easily keep out 10° of frost.

"A few hints on heating may be useful. The first principle to observe is to keep as even a temperature as possible. When the temperature outside is about 45° in the daytime, do not after closing up in the evening heat up to 55° , and when during a cold snap the minimum inside is barely kept above 35° , and this is followed by muggy weather, do not light the lamp then and run up a heat of 50° to 60° , because the next cold snap will do a lot of harm. I always try to keep my thermometer as near 40° as possible. If the outside temperature is above 40° in the daytime I open ventilators and put out the lamp. I very seldom have to burn it all day. I close up at 3 p.m. and look in the house the last thing—10 p.m. If the temperature is then about 40° I light the lamp, if near 45° I do not—of course judging what I think the weather will be. I have found

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this a safe rule. I did not lose a plant last winter, and flowered Tree Carnations every week during the whole year. The cost depends entirely on the weather. Under my method I scarcely light the lamp half a dozen times in November and December; in fact, it is required more in October and April to equalise the variable temperatures we experience then. The lamp burns for about twelve hours on one pint of oil, and so if lit every night would cost roughly 6d. per week."

When a greenhouse is heated by means of a boiler and hot-water pipes the best plan is to place the work in the hands of a competent firm making a speciality of this work, and to obtain from them an estimate of the cost. Even then it is well that the amateur should have some knowledge of the principles that underlie the practice of greenhouse heating, and these notes and sketches explain this concisely and clearly.

Of the several ways of heating a greenhouse, none is more reliable than by hot-water pipes and an independent boiler burning coke and coal, such an apparatus, although costly to instal, being economical in working and maintenance, whilst there is no risk of poisonous fumes entering the house, and the heat is well distributed and easily controlled. Pipes four inches in diameter are the best for greenhouses, and the length required depends upon the situation of the house, its cubical contents, and the temperature desired. A greenhouse very exposed requires more pipe than one well sheltered, but for ordinary situations the following table forms a reliable guide as to the quantity of pipe that should be provided:—

<i>Temperature required</i>	<i>Length of a 4-in. pipe required per 1,000 cubic feet of atmospheric contents</i>
45° to 50°	40 feet
50° to 60°	50 feet
60° to 70°	60 feet

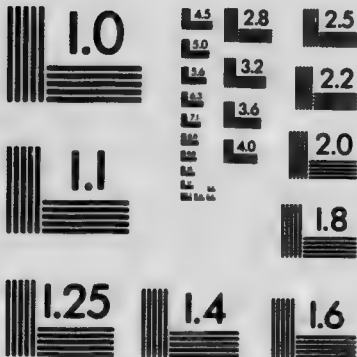
To find the cubical contents of a span-roof or lean-to greenhouse, the inside length, width, and height from the floor to halfway up the slope of the roof should be multiplied together. Thus, in Fig. 1, page 413, the contents equal 840 cubic feet, require 40 feet of four-inch pipe to maintain a temperature of from 50° to 60°, which means a flow and return pipe along one end and one side, as shown. For comparatively small greenhouses an apparatus having an expansion box at the termination of the pipes is the most suitable, but in any case the pipes must have a gradual rise of about 1 inch in 12 feet from the boiler to the highest point, which means for allowing the escape of any air in the pipes must be provided, as unless the pipes are clear of air the circulation of the hot water is checked.

A sectional diagram of an apparatus having an expansion box



MICROCOPY RESOLUTION TEST CHART

(ANSI and ISO TEST CHART No. 2)



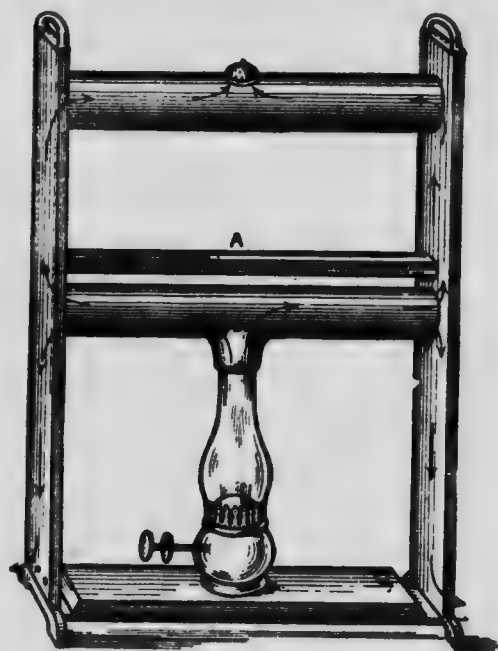
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at the highest point is shown in Fig. 4. the arrows indicating the course taken by the water circulating through the pipes. The expansion box or cistern, which also acts as a supply cistern for filling the apparatus, allows all air in the pipes to escape; but in cases where the supply cistern is near the boiler, as in diagram A, an air exhaust pipe carried up above the cistern must be provided, on the siphon end at the highest point, as shown. For a greenhouse where the hot water pipes do not exceed two hundred feet in length, an independent

boiler of the upright saddle or horseshoe pattern is as good as any.

These boilers are easily managed, economical in fuel consumption, and being fixed in the base wall of the greenhouse as in Fig. 1, the greater part of the boiler is inside, and the heat arising therefrom utilised instead of being wasted. The best fuel for this kind of boiler is good coke and household cinders mixed, or coke and a small quantity of good, clean coal, but coal alone should be used for lighting the fire. Wherever possible the smoke pipe should be carried up as high as the greenhouse ridge, as in Fig. 1, whilst suitable stoking tools, consisting



Heating apparatus for small greenhouse
Arrows show current of hot air

of a shovel, poker, and rake, as Fig. 5, should always be provided. Figs. 2 and 3 illustrate the front of a boiler of the type in question, and show how to regulate the draught. A is the fuel door, B the furnace door, and C the ashplace door, D the damper, E the smoke pipe. Although the door B may be opened, more or less, when a very strong draught is necessary, it is better as a general rule to rely upon the damper and ashplace door for regulating the amount of draught necessary. If a strong draught is required, the damper should be fully drawn and the ashplace door fully open, as in Fig. 2; but if only a slow fire with but little draught is necessary, all doors should be closed, and the damper opened only just sufficiently to allow the smoke to get away, as in Fig. 3.

CHAPTER XXXI

FAVOURITE GREENHOUSE FLOWERS

ONE is inclined to imagine that there is no pleasure comparable to that given by the outdoor flowers, and while such pleasure is not to be eclipsed, it is no less true that the care of a greenhouse has a fascination all its own, especially in the dull months of the year when the outdoor garden appeals only to those of an imaginative and hopeful turn of mind—those who are able to see visions of flower beauty where another would find only bare beds and borders. Let me then, with what persuasion I may, invite the reader for a brief stroll through a greenhouse full of the most varied blossom, and see what we can learn of the secrets of the flowers. We shall not learn all they have to teach us, for one cannot learn gardening and flower growing as one would a lesson in French, for are not the best gardeners still learning every day? We can scarcely take them as they come, though this would be, perhaps, the pleasanter way. I am afraid they would not greet us in alphabetical order, as is undoubtedly most convenient to a reader. Unless otherwise indicated, the following plants thrive in a greenhouse having an average night temperature of about 50° . In severe weather it may fall to 45° or even 40° at night without harm being done.

AURICULA.—The Auricula is a favourite flower with those possessing only a frame or small greenhouse, and particularly in the northern counties amateurs grow the plants largely for show purposes. Auriculas are divided into three chief groups, namely, Show, Alpine, and Border varieties. The Show sorts are grown altogether under glass; Alpine and Border Auriculas are hardy, although the Alpine varieties are often given glass protection, since they are then seen in greater beauty than out of doors. Show Auriculas are distinguished by leaves covered by a grey powder-like substance and blossoms of varied colouring and great beauty. Those belonging to the two other classes have green leaves that are not easily marred by the effects of bad weather. Show Auriculas are divided by florists into various classes according to their colour and marking as self (one colour), green-edged, grey-edged, and white-edged. Alpine varieties may either have a yellow

centre or cream-coloured centre with an outer zone of other shade. Border Auriculas now comprise many vigorous growing sorts, chiefly with self-coloured flowers that make a fine display in the garden. Auriculas are raised either from seeds or by detaching offshoots from the parent plants. These are taken off as soon as large enough, and several are placed round the side of a 3-inch flower pot. If kept in a closed frame for a few weeks roots will form. A little air is given for a short time every morning to "dry up" the atmosphere. Seed is preferably sown as soon as ripe, for it germinates slowly, especially if kept for some time before sowing. Sow thinly in flower pans filled with finely sifted soil, cover with glass and place in a shady frame. As the seedlings show and become large enough to handle, they are transferred to other flower pans, leaving each plant 2 inches apart. Some of the seeds may germinate months after sowing; the pan or pot in which seeds were sown should not be thrown away when the first seedlings have been potted.

The amateur should recognise that the Auricula is a hardy plant, and that the Show and Alpine varieties, when grown under glass, are given such treatment that the plants and flowers may be seen at their best, and not because the plants are unable to withstand cold weather. Those who wish to have the Show and Alpine varieties at their best should grow them during the summer, in cold frames facing north. Border and Alpine varieties may be grown out of doors in a partially shaded border. The lights are kept off the frames both day and night except during heavy rain. When, in late autumn, dull, damp weather sets in, a greenhouse that can be heated if necessary is the best place for them. They must be kept near the glass roof, say within 12 or 18 inches, and a night temperature of about 40° should be maintained. The artificial heat is only to be used to keep out frost and to keep the atmosphere fairly dry, so that the leaves may not "damp off." Auriculas are repotted as soon as the flowers are over. The best growers do not use flower pots larger than 4 or 5 inches in diameter. Thus a plant may be repotted in a pot of similar size, for the old soil is shaken off and the roots may be trimmed very slightly. Three parts turfy soil, one part decayed manure, one part leaf soil with a good sprinkling of sand form a suitable compost. The flower pot used should be clean, and well drained with crocks. Auriculas need little or no manure; they flower splendidly if rain water only is used. If hard water is made use of, let it stand in the sun or, at any rate, outdoors for a day or two before it is used.

BEGONIA.—When one starts to write about the Begonia there is so much to say that it seems as if one might easily fill a volume, and indeed, it would not be difficult, for I do not doubt that what has been done might easily be done again. I have already pointed out how valuable is the tuberous Begonia for both the greenhouse and the outdoor garden, when grown to flower the same, from seeds sown in January. I had high praise for the many brilliantly coloured

varieties of the tuberous Begonia. I should be equally justified in waxing enthusiastic over the fibrous-rooted, or greenhouse, Begonias, especially those that flower throughout the winter months. They are not quite so accommodating as the tuberous sorts, for after the latter have flowered they very conveniently die down and so relieve one of the necessity for any further attention beyond storing them away safely for the winter. Those that have not tuberous roots—being known, as I have indicated, as fibrous-rooted Begonias—are not quite so easily dealt with, for they do not die down altogether, and therefore need more or less constant attention. One of the best for winter is Gloire de Lorraine, which forms a neat little bush and smothers itself in rose-pink blossoms. This has now been a favourite for some years, and many forms of this variety have been brought to notice. It is doubtful if any of the pink sorts are an improvement on Gloire de Lorraine, but there is one beautiful white variety, called Turnford Hall, a counterpart of the pink except in colour. Many splendid cross-bred sorts invaluable for winter blooming have been raised. To increase these sorts take cuttings in June. Among the best are Winter Cheer, John Heal, Ensign, and others. Gloire de Sceaux, with bronze-coloured leaves almost more attractive than the rose-coloured flowers, which do not come quite so freely as one could wish, is well worth growing. Begonia metallica is a fine old plant that grows 3 feet high. It is not of the same compact habit as those already mentioned, but makes a handsome specimen, its leaves being of greater decorative value than the flowers, which are pink and not produced any too freely.

There is not much to tell of the way to increase the Gloire de Lorraine Begonias, except to say that the amateur may regard them for purpose of increase as he would a Bouvardia, Fuchsia, or other similar greenhouse favourite. That is to say, one makes cuttings of the young growths in early spring, February and March, inserting them in flower-pots filled with sandy soil. They are inserted near the edge of the pots, and the latter are placed in a propagating frame or in a glass case in the greenhouse. The frame is kept closed for a few weeks so that the cuttings may take root all the more quickly, and every morning the moisture that collects on the glass is carefully wiped off, so as to exclude the possibility of that bugbear of the plant grower, "damping off." If the glass case contains a nice little bed of coco-nut fibre that is warmed from beneath by hot-water pipes, the cuttings will take root all the more readily. Once the little plants are rooted, all one has to do is to repot them as becomes necessary, and grow them in the greenhouse.

Perhaps the most easily grown of greenhouse Begonias is semperflorens, of which there are variously coloured sorts in rose, pink and white, a plant, by the by, that scarcely belies the name given it by the botanist. The semperflorens Begonias are often used for summer bedding in the outdoor garden. They are raised from seeds and cuttings in

spring. A fine old Begonia, that grows so tall that it is often used as a greenhouse climber, is the bright red-flowered variety called *President Carnot*. What more can I say about Begonias except to advise the amateur, especially if his greenhouse is a shady one, to grow ornamental-leaved Begonia Rex and its varieties, the foliage of which is richly and variously coloured? These are often used in rockeries in warm, shady greenhouses with great success. The Begonias are increased in a curious way—by means of the leaves, which possess thick mid-ribs; if these are cut through with a knife, the leaves being placed on sandy or light sandy soil in the propagating case and occasionally moistened, little roots soon form, and the plants are potted into small flower pots. *Begonia Gloire de Lorraine* may be increased in a similar way, but the amateur will meet with greater success if of this variety ordinary cuttings are taken.

CALCEOLARIA (*Slipper Wort*).—There are few more handsomely greenhouse flowering plants than the Herbaceous Calceolaria. Vigorously grown plants are often 2 feet across, and if a good strain of seedlings is sown the colours of the blossoms are extremely varied and showy, while the quaint markings enhance the charm of the flowers. A cool, moist atmosphere is one of the chief essentials to success; the plants will languish in a warm, dry greenhouse. Seeds are sown in May, June, and July to provide a succession of blossom the following early summer. Sifted sandy soil is prepared, and large, shallow flower pans, which being well drained with crocks, are filled with the compost. The seed is very small and needs sowing with care, or much of it may be lost. It should be covered only with a very light sprinkling of sand. When placed in a greenhouse or frame, preferably facing north, and the flower pans being covered with glass and shaded, the seedlings will appear in a few weeks. Care should be taken to sow in moist soil, and when water is needed the pan is immersed almost to the rim in water; the latter must not be applied from above. As soon as the seedlings are large enough to get hold of conveniently each is potted separately in a small flower pot. The best compost to use is turfy soil with which sand is freely mixed; when used for the seedlings it is passed through a sieve, but only for the first potting. The best place for the plants throughout the summer months is in a frame, which is shaded during hot sunshine, and if they are on ashes so much the better, for then cool and moist conditions are assured. As the roots reach the sides of the pots the plants are repotted until, in February, they are put in those 8 inches in diameter, in which they will flower. During the winter they are kept in a heated frame or greenhouse, but the temperature must not be allowed to rise above 45° at night, and in very cold weather it may without harm fall to 40°. Comparatively little water is needed during the dull weather; the soil must be kept moist, but not wet. At all times except in severe weather the plants need to be kept within 12 inches of the glass roof, or the

will not grow sturdily. Success will only reward the grower if the plants are kept free from insect pests, the most troublesome of which is greenfly. This may be easily kept down by using one or two of those useful little cones called Fumigen, to which one has merely to set a match to fill the greenhouse or frame with a vapour that kills the insects. As soon as the plants are rooting freely in the large flower-pots in spring a weekly sprinkling of fertiliser should be given if liquid farmyard manure, which is preferable, is not obtainable.

CINERARIA.—Cinerarias are amongst the most gorgeous greenhouse flowers. Anyone having a greenhouse in which a minimum winter temperature of 40° can be maintained should have no difficulty in growing them. They last a long time in bloom, particularly the newer varieties, which are the result of crossing the old and somewhat stiff-looking, large-flowered varieties with the Star Cineraria, which is distinguished by graceful branching growth and a multitude of small flowers. The new race combines the excellences of both the old and the new; the plants have the graceful habit of the Star Cineraria and many of the brighter colour shades of the old florist's varieties. The cultivation presents few difficulties; the time of seed sowing is regulated by the time when it is desired to have the plants in bloom; they begin to flower about nine or ten months after seed sowing. Thus, if flowers are wanted in mid-winter the best time to sow is late in March. Cinerarias are, however, generally grown for blooming in spring, and in this case the seed is sown in May, and generally this is the best time. The method of sowing the seeds and rearing the seedlings is the same as with other greenhouse plants—in flower-pots or flower-pans filled with light, sandy soil. If these are placed in a closed frame or greenhouse, the seed will soon germinate. Cover with glass, and over this spread a piece of paper until the seedlings show through, then place them near the glass, shading only from sunshine. Thin sowing is to be recommended.

When the plants are large enough to handle conveniently, say an inch high or less, they are transferred singly to small pots, using as a soil mixture turfy soil passed through a coarse sieve, leaf soil being freely mixed with it. From this time onwards the plants are best in an unheated frame kept closed, say, for a week, until the little plants are rooting freely; then air is gradually given. As the plants progress they are given still more fresh air until, in warm weather, air may be left on the frame throughout the night. Shade is always necessary during hot weather. When nicely rooted in small pots the plants must be put into larger ones, those 4 inches across being suitable. They may, however, be transferred directly into flower-pots 6 or 7 inches in diameter—those in which they are to bloom. This saves time and labour, but it is not altogether to be recommended to the inexperienced, since it is so easy to over-water when they are placed directly in large pots. If those 4 inches in diameter are used it will be necessary to re-pot into the flowering pots as soon as the

plants are nicely rooted. Repotting should never be delayed until the plants have crowded the soil in which they are growing with roots. As soon as a fair number have reached the sides of the flower-pot, repotting should be done, so that the plants may not be checked in growth. As to the soil mixture there is nothing to excel old turves pulled into pieces about the size of a pigeon's egg with the hand, using two-thirds of this, one-third old leaf soil and a sprinkling of sand.

General hints to observe in growing the *Cineraria* are to keep the frame closed for a few days after each repotting, so that the plants may be encouraged to form fresh roots quickly. Careful watering is necessary until the plants are well rooted in the various flower-pots. During the summer, say from the middle of July until the middle of September, the plants may be placed out of doors if a cool position can be found for them—one that is shaded from the midday sun—or they may be kept in frames the whole summer, but they must be given plenty of fresh air both night and day. In September the plants are brought into the greenhouse, but they must not be treated as house plants. A night temperature of 40° or 45° is quite hot enough for them, while air must be freely given during the day-time in favourable weather. Liquid manure diluted with the same quantity of clean water may be applied from August onwards, being given once a week, or, this not being procurable, one of the many artificial fertilisers may be applied. Care must be taken not to crowd the plants together during their season of growth, otherwise the lower leaves may turn yellow and fall off. *Cinerarias* enjoy coolness, and for this reason it is recommended to stand them on ashes throughout the summer months. The plants are very subject to the attacks of greenfly; this may easily be kept down by the use of Fumigen. This is a most useful invention in the shape of a little red cone, which is placed on the floor of the greenhouse or frame it is wished to fumigate. A match is applied to the top of the cone when it burns away merrily, soon smothering the plants with a vapour that is fatal to the greenfly. These little cones are most convenient for amateurs, and are strongly to be recommended.

CYCLAMEN.—The Persian Cyclamen is a favourite winter flowering greenhouse plant, and when well grown there are few to surpass it from December to March. Perhaps the best time to sow seed is in August, although many growers sow in November. The Cyclamen is not altogether accommodating, for some skill is needed to have it in perfection. The chief thing is to keep the plants growing steadily; if through any cause, such as faulty watering, careless ventilation, or neglect to repot when necessary, a check is given, then fine plants full of blossom can scarcely be expected. Flower pans rather than flower pots are recommended for seed sowing; these are filled with finely sifted sandy soil, made moderately firm and watered a few hours before seed sowing. The seeds need only a light covering of similar soil, and are sown thinly,

a pane of glass being placed over each flower-pan. A greenhouse temperature of about 60° ensures their germination, and in August this is, of course, very easily obtained with little or no fire heat. An occasional light syringing is necessary to keep the soil moist. When the seedlings show through the soil the glass is removed, and the plants are kept near the glass, as all seedlings should be, so that they remain sturdy. Shading is, of course, necessary during germination and for some weeks afterwards. When two leaves have formed the little plants are transferred to shallow boxes filled with a compost of two parts turfy soil and one part leaf soil, with a sprinkling of sand, each plant being 3 inches or so from its neighbour. There they remain throughout the winter, near the glass, and in a temperature of 50°-55°. Fluctuations of temperature are to be avoided. If 55° can be maintained at night without difficulty, then that is perhaps preferable to one of 50°, but this does very well. It should not be 50° one night and 60° the next. In March each plant is potted singly in a 2½-inch wide flower pot, a similar soil mixture being used, with the addition of a little dried cow manure rubbed through a sieve. These little details may seem superfluous, but in the cultivation of plants under glass, and particularly with Cyclamen, they have a real bearing on a successful issue. A heated frame is a capital place for them from March onwards, for there they can be kept close to the glass without difficulty. A minimum night temperature of 50° is still essential. Some growers place the small pots in boxes, filling in between with coco-nut fibre, and this is an excellent practice, as it goes far to ensure those equable conditions of moisture at the roots that so delight the Cyclamen.

When the thermometer registers 10° above the night temperature a little air is given, this being increased if sunshine raises the outdoor warmth. The amount of air is gradually decreased in the early afternoon, the frame being finally closed about three or four o'clock. By the end of June the plants will need further repotting, this time into 4-inch wide pots, in which they will bloom. Rather more dried manure is used on this occasion, and sand is also necessary. The plants may remain in the frame until about the middle of September, no heat being needed. Throughout the summer months the plants are syringed morning and evening, and careful attention to watering is essential, so that the soil is never dry nor saturated. Shade from sunshine is necessary; in fact, cool moist conditions are what the Cyclamen delights in, with as equable a temperature as the grower can provide. Once back in the greenhouse the plants should have diluted liquid manure once a week, or a special fertilizer will do, as this is conveniently applied. Flower buds will show during autumn, and they denote the beginning of a flowering season that is not over until March. After the blooms are passed, the plants must not be neglected if they are to be grown on for another year, and two-year-old Cyclamen make handsome specimens. Keep them in a frame, gradually giving less water as the leaves turn yellow and fall off. When all the leaves

have fallen off, expose the plants to full sunshine. In late July, growth begins, repot in 7-or 8-inch flower pots, and grow them on similar conditions to those already detailed. It is quite likely that elaborate methods would give the amateur fair plants, but, unfortunately the Cyclamen is one of those plants that if not well grown is scarcely worth growing at all. Named varieties of various colour shades are to be purchased. There is also the giant Cyclamen, which gives fine blooms of large size though fewer than the ordinary strain. Butterfly Cyclamen, distinguished by fringed blossoms, and Scotch Cyclamen, with fragrant blooms, are also now offered by seedsmen. A packet of mixed seed will probably suit the amateur quite well.

MIGNONETTE FOR WINTER.—Mignonette is, of course, an indispensable summer flower, and it is not really a difficult matter to have plenty of it then. But it makes an admirable winter flower also; extra trouble involved in its cultivation is quite compensated for by a few potsful of bloom at Christmas. The amateur can scarcely hope to obtain such magnificent specimens as one sees in market nurseries, although, if he is unusually painstaking and gives close attention to detail, he may do so. It is most necessary to sow seed of a good strain, or the best results cannot be hoped for. Machet, Sutton's Giant, and Miles's Spiral are varieties that can be recommended. One of the chief things to remember is that it is a bad plan to transplant seedlings. Mignonette is one of the most difficult of flowers to transplant. The seed is sown in August, usually about the middle of the month, and the following is the method to be observed: Use clean flower-pots 4 inches in diameter; put in crocks to ensure drainage, and fill to within half an inch of the rim with turfy soil passed through a coarse sieve, and with which a little sand and old manure, such as that from a disused hotbed, have been intermixed. Scatter about a dozen seeds on the surface, and cover very lightly or not at all. A sprinkling of sand is really all that is needed. The best place for the pots is a cold frame; shade is necessary, and until the seedlings show, a pane of glass should cover each flower-pot. It is very necessary to press the soil down firmly.

After the little plants show through, give water when necessary, by immersing the pot to two-thirds of its depth in a bowl of water, so that the moisture rises through the soil. If watered from the top, the seedlings may be killed. The plants must have all the fresh air possible, so that they may remain strong and sturdy. When they are an inch or two high remove all but five of the best. When 10 or 12 in fair numbers show through the soil, repot into 6-inch pots. The compost on this occasion may contain rather more manure. Make the soil firm, and be sure that it is pressed down and around the flower-pot. It is important to grow the plants as "cool" as possible; therefore keep them in the cold frame so long as there is no danger of frost reaching them. In October remove them to a shelf near the glass in the greenhouse, giving plenty of air during the day-time. When

the little plants are 3 or 4 inches high pinch out the top of each ; this will encourage a "bushy" growth. Staking should be done in good time or the plants may fall over. A few thin sticks placed round the edge of the flower-pot and connected with raffia tape—a green tying material to be had from sundriesmen—alone are necessary. Liquid farmyard manure, or a little guano mixed with water, may be given when the flower spikes show

IVY-LEAVED PELARGONIUM.—While we have had Ivy-leaved Pelargoniums with single flowers for more than a century, the double kinds now so popular date from 1874. The first was Koenig Albert, a variety with lilac-purple blossoms, which has long since gone out of cultivation. It was about 1880 that the bright coloured varieties made their appearance, and from that time they have become more popular year by year. Now there is scarcely any limit to the uses to which Ivy-leaved Pelargoniums may be put, for many of them form delightful bedding plants, are useful in window boxes and for draping balconies. They are indispensable for large vases out of doors during the summer, and in very favoured parts of these Isles they form delightful wall plants. Again, in the greenhouse they may be trained to pillar, roof, or wall, or supported by a few sticks they readily form bushy specimens, which will keep up a display of flowers from spring until late in autumn. Ivy-leaved Pelargoniums can also without difficulty be grown as standards, and in this way they form a very striking feature in the flower garden during the summer. Some of the best are : Achievement, salmon-pink ; Alliance, bluish white ; Beauty of Castle Hill, soft rose, dark blotch ; Colonel Baden Powell, lilac-blush ; Corion's Glory, scarlet ; Galilee, rosy pink ; Giroflée, magenta purple ; Huntsman, scarlet ; James T. Hamilton, carmine crimson ; Jeanne d'Arc, white, suffused lavender ; La France, lilac ; Leopard, rosy-pink, blotched crimson ; Madame Crousse, silvery pink ; Mrs. Hawley, rich rose-pink ; Murillo dark crimson ; Ryecroft Surprise, salmon-pink ; Souvenir de Charles Turner, deep reddish pink, feathered maroon ; The King, dark cerise ; The Queen, soft salmon. Of these, the most popular for window boxes, balconies and vases are Galilee, Madame Crousse, and Souvenir de Charles Turner.

SHOW, FANCY, REGAL, AND DECORATIVE PELARGONIUMS.—All the innumerable forms of Pelargoniums now in gardens have originated from a few distinct species, natives of South Africa. For the great improvement effected in the flowers we are indebted to the skill and perseverance of the hybridist, combined with the process of selection which has been going on for years. Twenty to thirty years ago large specimen plants of the Show, Decorative, Regal and Fancy varieties were always well represented at the principal summer exhibitions, but they have now almost disappeared. They are, however, still extensively grown as small plants for decorative purposes, and during the season immense numbers are brought into Covent Garden Market. Where a greenhouse has to be kept gay with flowering plants throughout

the year they are, during the summer, quite indispensable. The above terms for the different sections are in common use in practice, very purring. The reason of this is largely owing to the fact that they have all been crossed and inter-crossed with each other so that no hard and fast line can be drawn between them.

The original types are natives of the large open plains of Africa, where they have ample light, sunshine and air. Under cultivation these conditions must be, as far as possible, reproduced. It is useless to attempt to grow the plants in a close, stuffy atmosphere as this will lead only to attenuated growth, few flowers, and the attack of insect pests. A sunny greenhouse with plenty of ventilation is necessary. During the flowering season the plants may be shaded as the blooms then last much longer, but, when growing, sunshine is beneficial. It is a good plan for the amateur to pay a visit to a nursery where a collection of these plants is grown, in May or June, and make a selection from those in flower. Then, when these are out of bloom, say towards the latter part of July, the plants should be bought, and cut back within 3 to 6 inches of the soil. They should then be laid on their sides out of doors in a sunny spot; new growth will soon form. As soon as the growths are half an inch long the plants are repotted. The roots are, as a rule, few and very long. These may be shortened to 6 inches, and the plant put into a comparatively small pot. A good compost is turfy soil, with which is mixed a little sand and leaf mould. After being potted the plants are placed out of doors until the end of August or thereabouts, and then taken into the greenhouse. The most forward may, in October, be put into their flowering pots (those from 6 to 8 inches in diameter), leaving the repotting of the weaker ones until the new year. A little bonemeal mixed with the soil will be of service. As the plants advance, and the pots get full of roots, a little fertiliser will greatly assist development. When cut back most plants produce several shoots, and thus lay the foundation of a bushy specimen; in fact, a few of the weaker shoots may need to be removed to prevent overcrowding, but occasionally a plant will only produce a single shoot. In this case it must, when a couple of inches long, be stopped in order to ensure a bushy habit. Practically the only insect pests that give trouble in the case of *Pelargoniums* are aphides or greenfly, and these are easily destroyed by vaporising with nicotine.

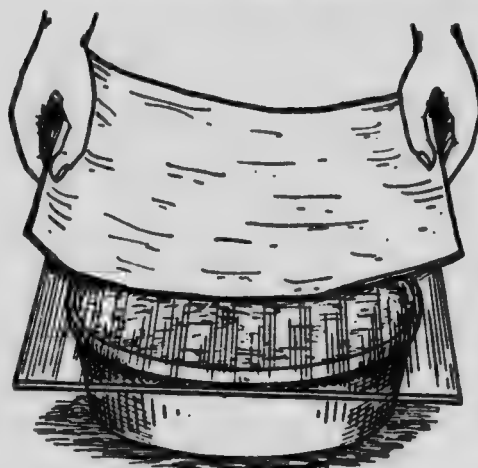
Pelargoniums are readily propagated by means of cuttings, though in order to obtain new varieties they are raised from seed. When the plant is cut down after flowering plenty of cuttings are available. The sturdy shoots are the best. A length of 4 inches is very suitable for the cutting, which should be cut off cleanly just below a joint, the bottom leaves removed, and then be dibbled firmly into a clean, well drained pot of sandy loam. The best place for the cuttings is on a sunny shelf in the greenhouse, where they will soon root. If the seed is sown as soon as ripe, it is often a difficult matter to keep the

plants through the winter, for which reason the better plan is to sow the seeds in early spring. The young plants should be grown on as advised for cuttings, but the flowers may not show their true character until the second year. Even then many of the seedlings will prove to be inferior to those already in cultivation.

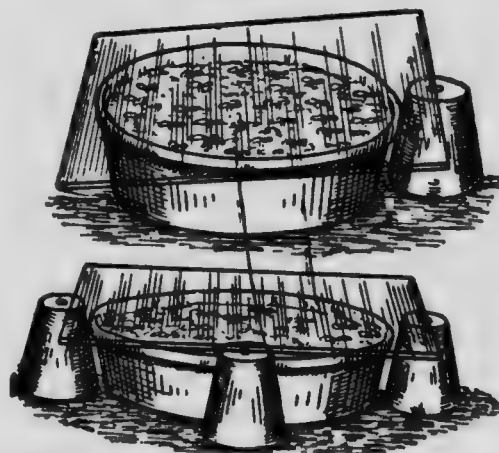
PRIMULA.—The Primulas most commonly grown in greenhouses are the various forms of Chinese Primula (*sinensis*). With one exception, they are grown from seed. The old double white Primula forms the exception, and this is increased by cuttings. The most generally useful, and by far the most graceful, are the *Stellata* Primulas (*sinensis stellata*); they produce tier on tier of lovely flowers on tall stems throughout the winter months. The ordinary Chinese Primula and the *grandiflora* varieties, while giving larger blooms in bigger bunches and being undeniably handsome, lack the grace of the taller-growing, free flowering Star Primulas. The method of treatment is very similar. In order to have a prolonged display of bloom it is necessary to sow seed on several different occasions, in March and April for October and November, in June and July for winter and early spring flowers. Some care is necessary in seed sowing and in the treatment of the seedlings. Clean flower-pans (which are preferable to flower-pots, since the seedlings can be removed more easily from them) are filled with finely sifted soil made up of half loam or turfy soil, half leaf soil, and plenty of sand. Good drainage is provided by means of crocks. Having made the soil firm and level and watered it an hour or two previously through a can with a "rose" on the spout, sow the seeds thinly and cover them with a slight sprinkling of sand. Place a piece of glass over the pan and keep the latter shaded in a greenhouse with a minimum night temperature of 50° to 55°. During sunny days the temperature will probably rise to 70°, but provided the seed pans are shaded this will do no harm. It is difficult to say how long the seed will take to germinate, for Primula seed is notoriously irregular in coming up, although I have found that Chinese Primula seed comes up more readily than that of certain species of Primula to be mentioned presently. Probably some will show through the soil in two or three weeks, while other seedlings may not appear for five or six weeks, or even more. It is most important that the soil should be kept moist, not by watering from above, but by standing the pan in a basin of water to two-thirds of its depth. In a few minutes the water will rise to the surface soil; when this has become moist remove the flower pan from the water.

Do not be in too great a hurry to transplant the seedlings; in any case they need most careful handling, and the smaller they are the greater is the care needed. "When they are large enough to handle" is the advice commonly tendered, and this may be taken to mean as soon as they have made one or two true leaves other than the "seed-leaves" or cotyledons which first appear. Unless the cultivator is expert, it is best to transfer each seedling singly to a small pot

(2-inch), then there is no further risk of root disturbance. It becomes necessary to give the plant a further repotting. A sound practice of sowing thinly is appreciated when it is seen



Primula seeds sown in flower pan, this being shaded.



When the seedlings show a little air is given.

ture of 50°, otherwise the leaves turn yellow and fall. From the small (2-inch) flower pots the seedlings may be transferred to 5-inch pots, or put in 4-inch pots, and subsequently, as they become well rooted, into those 6 inches in diameter.

Excellent plants, especially of the Star Primulas, can be grown

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in 3-inch pots but, of course, still finer specimens are obtained in 6-inch pots. Those that are intended to bloom in early winter do well in 3-inch pots, but those that are to flower in spring may well be grown in 6-inch pots. An excellent soil mixture for all but the earliest potting is made up of turfy soil (passed through a coarse sieve, or even better still, pulled to pieces about the size of a pigeon's egg by hand) and leaf soil in equal parts, a little dry cow manure rubbed through a sieve, and a good sprinkling of sand; all should be well mixed together. This is an ideal mixture, but that is not to say that good Primulas may not be grown in much poorer soil. I have proved that they can. One point of importance in repotting Primulas should be mentioned: if the centre of the Primula is not kept well down in the flower-pot as growth progresses, the plant grows out of the soil and becomes loose; a support then becomes necessary, and this naturally detracts from the plant's appearance. Moreover, Primulas do not thrive so well when they are not firm in the soil. It is advisable to cover the base of the leaf stalks at the final potting. It is well to know that the more fresh air the Primula has in favourable weather and the cooler treatment given after the first potting the harder and finer will the plants be. The Chinese Primula is in no sense of the word a hothouse plant. In fact, throughout the summer months I have grown them out of doors. But this is only advisable if some protection from wind and heavy rain can be given.

A few other admirable greenhouse Primulas that need even less heat than the Chinese forms are the following:

PRIMULA KEWENSIS.—A most showy plant, with bunches of bright yellow blooms, freely produced throughout winter and spring.

PRIMULA OBCONICA.—It is not uncommon for this plant to remain in uninterrupted bloom for six or eight months. A good strain of seed should be obtained, otherwise the flowers will show little variation from pale lilac or lilac-pink colour. The best strains of seed will give blossoms varying from crimson to white. It is now pretty generally known that *Primula obconica* possesses poisonous properties that may produce a rash on the hands and arms of those who handle the plants. Personally I have never experienced any ill effects from this cause, and comparatively few, I think, are thus affected. In any case, the danger is not sufficiently marked to mar a popularity that is rapidly increasing. It is quite likely that in a few years the poisonous properties will have disappeared altogether, for a race is now being raised between *obconica* and *rosea* in which the rich colour of the latter is apparent in the flowers, while the poisonous nature of the former is absent from the leaves.

PRIMULA VERTICILLATA (*Abyssinian Primrose*).—A charming Primrose, with whitish leaves and pale, yellow blossoms, freely borne on tall flower spikes in early spring. The crossing of this with *floribunda* (a small, yellow flowering winter kind) produced the invaluable Kew Primula, which may be regarded as a greatly improved Primula

floribunda. All these *Primulas* can be grown in a greenhouse at a minimum night temperature of 40° (so, too, can all the *C* *Primulas*, except the giant flowered sorts, which need a minimum 50°), but they are more satisfactory in a rather warmer house. They are easily raised from seed sown in April or May; the seedlings bloom the following winter. The cultural details are the same as for the Chinese *Primulas*.

Two other *Primulas* invaluable for the cold greenhouse are *Malacoides*, with small lilac pink flowers produced freely throughout a long period; and *bulleyana*, with handsome, dark orange-coloured blossoms on strong stems. *Malacoides* is one of the easiest to grow that, if I were American, I should say I have ever "struggled" with. It grows in a most embarrassing manner; from seed sown in September you get the plant in bloom in September. But a 5-inch pot is not enough for this; it needs at least a 6-inch pot, or even one 7 inches wide. I have many plants of this *Primula* in my greenhouse, and find that it makes so many roots that it must be treated generously, otherwise it is not seen at its best. It is essentially an amateur's plant. Some of the hardy *Primulas* make charming plants for the cold greenhouse. Other handsome *Primulas*, recently introduced, quite suitable for the amateur's greenhouse, are *littoniana*, red in bud form and with flowers of lilac purple, and *Forresti*, a handsome yellow *Primula*. *Primula cortusoides*, too, must be mentioned, it is an admirable greenhouse flower, and many varieties, showing a wide range of colour in the blossoms, are to be obtained.

WINTER FLOWERING GERANIUMS.—No winter flowering greenhouse plant surpasses the Zonal *Pelargonium* (*Geranium*) for brilliant colouring. A succession of bloom is maintained for several months if the temperature is kept as near 50° as possible, and fresh cuttings are admitted to the greenhouse whenever the weather allows of it. Cuttings are inserted in March, April and May. They form roots freely when placed on an airy shelf or stage in the greenhouse. Use sandy soil for the "cutting" pots. In June they are potted into 4-inch flower pots, in July being placed in the pots in which they will bloom. Use three parts turfy loam, one part leaf soil and one part decayed dry manure, with a free sprinkling of sand. The biggest plants need 6-inch, the smaller 5-inch pots.

During summer the plants are grown out of doors on ashes, in a sunny position. It is necessary to take out the points of the shoots occasionally to induce a "bushy habit." All flower buds should be removed until the end of August. In mid-September place the plants in a greenhouse. There are innumerable varieties. A few good single flowered ones are: The Sirdar, scarlet; Lady Roscoe, pink; The Mikado, cerise; Hall Caine, cherry red; Snowstorm and Mary Betts, white; Lord Curzon, magenta; Mary Pelton, pale salmon. Use the double varieties are: F. V. Raspail, scarlet; General de Wet, light cerise; Double Jacoby, crimson; Le Cygne, white.

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CHAPTER XXXII

A FURTHER SELECTION OF GREENHOUSE FLOWERS

ABUTILON.—This fine old plant has the double merit of possessing varieties that are valuable for leaf beauty as well as for attractive blooms. It is a pity that we cannot have both qualities in the same plant, but what would you? These are not the only merits of the Abutilon, for it can be put to many uses. It is scarcely surpassed as a climber, it makes an attractive plant when grown in the ordinary way in a flower-pot, and it is valuable also for the outdoor garden in summer. The way to raise a stock is from cuttings inserted in spring. I scarcely think I need repeat the details with respect to the way in which cuttings are induced to form roots, for I am tired of writing them, and I am sure the reader must be tired of reading them. Once for all, let me say that sandy soil, small flower-pots, and a glass-case kept closed for a few weeks are the grower's needful accessories, together with a cloth to wipe away, every morning, the moisture that condenses on the glass covering. When the little plants are rooted, all one has to do is to repot them in larger pots, and the best soil to use is that composed of turfy soil freely sprinkled with sand. Two varieties that stand head and shoulders above all others that rely for their attractiveness on handsome foliage are called Thompsoni, with yellow and green leaves, and Savitzi, beautifully marked with white and green. I was wrong when I suggested that there was no Abutilon possessing both beautiful leaves and attractive blossom. I had forgotten vexillarium; this has prettily variegated leaves and charming red flowers. Among Abutilons grown for the sake of their flowers alone, the best or, at any rate, some of the best, are Boule de Neige, which, as one might imagine, has white flowers; Canary Bird and Golden Fleece, aptly named, and therefore having yellow blossoms; Sanglant and Brilliant, red; and King of Roses, pink. These are very pretty if planted out in a border in fairly good soil and, as they grow, trained up the greenhouse roof. Their quaint blossoms, more or less bell-shaped, have a charming effect as they hang down. There is scarcely anything more easily grown than the Abutilon, and if the greenhouse is heated so that the temperature does not fall below, say, 50° or 55°, the plants will continue to bloom well on into winter. I feel that I have said enough in praise of a flower that is not so very commonly grown after all. Now let me say that if the plants are in pots too small for them (these should be at least 6 inches wide), if they are not given an occasional sprinkling of some fertilizer that

all good gardeners know so well and, finally, if the greenhouse heated, why nothing very dreadful will happen—only this, the plants will lose their lower leaves.

ACACIA.—The beauty of the Acacia needs no eulogy from me, for are not the florists' windows full of the lovely flower shoots in the spring of the year? Even then those who have seen the trees growing in the gardens of Italy and the south of France form little conception of the gorgeous flower picture they make lined against the deep blue of the southern sky, when our own gardens are still in the toils of fog and frost. I had almost said that it is hopeless to expect such a display as this in English gardens; but I would ask: "Have you ever been to Kew in Acacia time?" so few of us have giant glasshouses for the accommodation of such plants, that, after all, I am afraid I have made my point in vain. It is untrue that few of the Acacias are really worth growing in small pots; it seems such a travesty of gardening—something like a pot plant of the Laburnum, as is done, though I confess it makes much appeal to me. But there are just one or two that make admirable plants for pots. *Acacia armata*, *Drummondii*, *hastata*, and *pulchella* are the best. They are raised from seed or from cuttings, but the amateur's best plan is to make a start with bought plants. He ought to be able to maintain them in good shape by pruning the plants into shapely form immediately the blossoms are over, and repotting them at the same time if they seem to need it. It is, however, a mistake to put them in larger pots than are really necessary, for the smaller the pots they are in, in reason, the more freely they flower. They are placed out of doors for the summer, and brought into the greenhouse again in September. They need a lot of water, and to allow the soil to get dry at any time is to prejudice the chance of success.

ACHIMENES.—One of the most remarkable things about really beautiful greenhouse plants is that they have no popular name. I am sure if I were able to call *Achimenes* the Labrador Lily, or some other equally euphonious and appealing name, amateurs, to whom at present it is unknown, would rush to include it in their collections. Labouring as it does under a distinct disadvantage so far as its name is concerned, let me, nevertheless, advise everyone to grow it in a greenhouse with a minimum temperature of 55°. Its roots are quaint little things, and are classed by the botanist as tuberous, although to look at them one would not think they had much in common with those of the Dahlia, for instance. They resemble nothing so much as Hazel catkins. However, *Achimenes* show a strong affinity to the Dahlia (so perhaps, after all, the botanist is not far wrong) by dying down gradually after the blooms are over. They are started into growth in February, and make such rapid progress that they are in blossom in June. Several roots are grouped in a 5-inch pot; they may be placed almost touching each other, about an

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below the surface of the soil. The simplest way to proceed is to fill the pot to within an inch and a half of the rim with light soil made up, say, of half turfy soil and half leaf mould, sand being also freely used. The roots are placed on this and then covered as advised. Or, if preferred, the roots may be started into growth in shallow boxes filled with light soil, and, when the first growths are seen, be transferred to the pots in which they are to bloom. A temperature of 55° to 60° suits them best. They need little further attention beyond careful watering until well rooted, careful staking with neat little sticks, and an occasional dose of diluted manure water made by dissolving a little fertiliser in the water if farmyard manure is not to be obtained. Achimenes should be grown in a light place, a shelf fairly near the glass being suitable, although shade is necessary during the hottest part of summer days. When the blooms are over, gradually less water is given until, as the growths die away, it is discontinued. The roots are left in the flower pots until spring, the pots being stored in some dry place of greenhouse temperature.

AGAPANTHUS (*African Lily*).—This is a very charming blue-flowered plant that is nearly hardy and well suited for growing in the unheated greenhouse. It has handsome evergreen leaves, and in summer bears its attractive blossoms in bunches on tall, stout stems. It is commonly grown in large flower pots or tubs, and placed out of doors in the summer months, and is a favourite plant for garden terraces. An abundance of water is needed during the summer, but during the winter when the plants are under glass much less is needed, though the soil must not be allowed to get dry. An increased number of plants may be obtained by dividing the rootstock in March.

AZALEA.—The varieties of Indian Azalea have always retained their old-time popularity, and new forms are continually being raised in Belgium, where the cultivation of Azaleas is an important industry. The dwarf standards, each with a rounded head thickly studded with blossoms, form a very familiar feature there during the season. A notable feature of the newer Azaleas is that many of them have flowers of some shade of salmon rose, with a lighter margin. They are seen to great advantage under artificial light. A few good and distinct varieties are: Apollo, scarlet; Deutsche Perle, double, white; Dr. Moore, double, deep rose; General Postmeister Stephens, reddish. Peat, leaf mould and sand form the best soil mixture; loam should not be used unless free from lime. After flowering place the plants in a warm greenhouse; use the syringe freely. In July place them out of doors, first hardening them off. In September return to the greenhouse.

BOUGAINVILLEA GLABRA.—This is a particularly handsome climbing plant that will thrive in the cold greenhouse, but is preferably grown where there is artificial heat. I remember an old plant in a greenhouse of which I once had the management that had outgrown the accommodation provided by the high back wall against which, on a wire

trellis, it was trained, and annually its vigorous shoots sought fresh air. To see the *Bougainvillea* at its best, one needs to visit the sunny gardens of Italy and the south of France; there it finds its most supple growths over the painted faces of the sunlit villas, smothered in spring with lovely blossom. The only disappointment is that the lilac-rose flowers keep company with a wall that is painted to match. The *Bougainvillea* should be planted out in a border drained and filled with turfy soil. It is one of the easiest of all greenhouse climbers to grow, and loves the sunshine. Its flowers are produced in the summer's fresh growths; in spring the side shoots are cut back to within 2 or 3 inches of the stem so that strong young shoots may be produced. During vigorous growth in summer plenty of water at the root is needed, but during winter when the leaves are off and growth is at or less at a standstill, the soil is kept only slightly moist. A variety called *sanderiana* has deeper coloured flowers (or really bracts, for the true flowers are inconspicuous); it is also showy.

BOUVARDIA.—The *Bouvardia* seems to have lost a good deal of its former popularity, and it is safe to say that there are many better plants for the amateur. They have, however, the advantage of flowering during winter. They are not at all difficult to raise from cuttings taken in spring from the young shoots that form upon the old plants when these are placed in a warm greenhouse, and they need no more the same treatment as *Fuchsias*, which are referred to at length. With the *Bouvardia* the amateur fails to grow good plants it is usually because he neglects to pinch out the points of the growths; if this is not done several times during the summer the plants become "leggy," whereas one should aim at having them sturdy and bushy. During the summer they should be grown in cold frames, and in September are brought in the greenhouse. The usual soil mixture suitable for most greenhouse plants suits them, namely, turfy soil with which a little leaf soil and sand have been mixed.

BROWALLIA SPECIOSA.—Here is a fine little long-flowering plant for the amateur's greenhouse, a plant that is, moreover, easily raised from seed. The variety *major* gives finer flowers than the typical sort. Seed is sown in February and, if well cared for in the way that seedlings like to be cared for (and need I again describe their likes and dislikes?), they come to flowerhood in a very few months, and delight the gardener with their charming blossoms the summer through. The finest of all the *Browallias* is *Jamesoni*, a lovely orange blossomed plant that is now commonly known as *Streptosolen Jamesoni*. To see it in Riviera gardens, where it smotheres veranda, balcony and house porch with its leafy, flower-studded trails, is to appreciate its possibilities, but even in the greenhouse at home, as a pillar climber, it is often very beautiful. The secret of success is to plant it out in a soil mixture consisting of two parts turfy loam, with leaf soil and sand freely intermixed. Even there it delights the grower for many summer weeks. It is increased by cuttings. How to prune

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CAMELLIA

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It? Why, merely cut out a few of the oldest shoots after flowering. The violet blue speciosa is raised from seed each spring.

CALLA.—When a plant has so many names as this it is difficult to know to which to give prominence; it is probably equally well known as Calla, Arum Lily, or Richardia. Everyone knows the large white spathes (I cannot really bring myself to call them flowers, poor botanist though I am) are in great demand in winter and spring, particularly at Easter, for decorative purposes. Anyone can grow the Arum Lily who gives it plenty of water while it is growing and plenty of liquid manure; it is a gross feeding plant, and not to pander to its appetite is altogether to alienate its sympathy and, as every good grower knows this leads to much disappointment. If the grower is out for good results with little trouble his best plan is to plant them out of doors for the summer months instead of keeping them in pots; they can then be readily swamped with water, which is just what they like—in fact, the Calla is a good water plant. In September they are taken up and potted, one root in a 5-inch pot, or two or three in larger pots, then according to the temperature in which they are grown they may be had in bloom from Christmas onwards. This is only one of the two distinct methods of growing them that is advised by practised gardeners, but it is the one I learnt and that I know gives good results. Others prefer to dry off the roots after they have flowered in spring, giving them two or three months' complete rest. Let the reader try them both and decide for himself which gives the best results. The common white Arum Lily is frequently seen in pools and ponds in gardens during the summer months, and there it makes quite a distinct and ornamental show. Those who appreciate the white Arum Lily will no doubt be anxious to grow also the yellow ones. These are particularly handsome. Elliotiana is perhaps the best of them, and with its green, white spotted leaves and golden-yellow spathes it is one of the most handsome plants the greenhouse can boast. It is at its best in late spring and early summer. After flowering, the plants are gradually given less water and allowed to dry off; if repotted in late autumn and brought into the greenhouse they will soon commence to grow. They are not to be given such haphazard treatment as the common white ones, and should be kept in pots the whole year round.

CAMELLIA.—This is a handsome flowering shrub that has fallen from its high estate, and has sunk low in popular estimation. Will Camellias, I wonder, ever come into fashion again? I think not, for they are too stiff and formal for present-day taste in flowers, which is all for the free and natural. It may not be generally known that the Camellias are hardy, at any rate in the southern counties. They are grown out of doors unprotected at St. Leonards, near Windsor, and also at Kew. They flower well enough there, and frost does not seem to harm them but their delicate blooms are sadly disfigured in bad weather, and for this reason they are not to be recommended

for cultivation out of doors. In the greenhouse they may be planted out in a bed of prepared soil, or grown in large 12-inch wide flower pots. They begin to bloom in early spring, and if a collection of different sorts is grown Camellia flowers may be had for several weeks together. In the Royal Gardens, Windsor, we grew a large number of Camellias; they were planted out in the centre of a greenhouse and in spring gave a fine gathering of welcome blossoms. The Camellia likes a well drained, turfy soil with which sand and peat are freely intermixed. They need little pruning; all that is done is to cut back long straggling growths that threaten to destroy the symmetry of the plant. The time to attend to this is as soon as the flowers are over. It is then that fresh growth is formed, and for encouragement they are given a warm, moist atmosphere for some weeks. When growth is completed, say in July, gradually more air is given until the plants are kept quite cool, so that growth may ripen and flower buds form. Those who grow Camellias in pots or tubs may turn them out of doors from July until the rains set in, and then bring them back into the greenhouse. There are both single and double varieties; the former are, I think, more captivating, though the latter by their exquisite form appeal to many. An old single red variety that I am fond of has the old-fashioned name Donkelaari; *reticulata* is a very fine red coloured sort. Of white sorts *alba plena*, *alba fimbriata* and *simplex* are favourites.

CANNA (*Indian Shot*).—Cannas have the distinction of possessing both handsome leaves and showy flowers; they are grown alike in the outdoor garden in summer and for the greenhouse, although they take up a lot of room, they are perhaps not so generally used as other greenhouse flowers. At any rate, there is no difficulty in growing them; while the tops die down in winter the thick, fleshy roots are perennial. If they are grown in pots, one merely discontinues giving them water gradually as the leaves show signs of fading; when the tops have quite died down they are stored away under the greenhouse staging for the rest of the winter; the only precaution necessary is to turn the pots on their sides so that water given to plants above may not reach them. If the plants are grown outdoors they are taken up in autumn and put in boxes, the roots being covered with soil; the soil is kept moist so long as the tops are green, but they quickly fade, then little or no water is needed. They are kept almost dry at the roots throughout the winter months. In February or early March when signs of growth are apparent, the roots are repotted. If an increased stock is needed, all one has to do is to divide the crowns, pot each separately in a 4-inch flower pot. It is not wise to break the roots up into small pieces, otherwise the plants are so weak that they do not flower. They are grown in the greenhouse, being given larger pots as required, if intended for greenhouse embellishment, but if for planting outdoors in early June they are only repotted once—in 6-inch flower pots. The chief requirements of the Canna

are a good loamy or turfy soil, and a copious supply of water when they are growing freely. Cannas are among the most thirsty of plants, and can scarcely be over-watered during the summer months. It is an easy matter to raise them from seeds which are sown in January in warmth. The seeds are very hard, and in order to get them to germinate freely they should be soaked in water for twenty-four hours before sowing so as to soften the hard outer coating. The little pots in which they are sown should be plunged in coco-nut fibre that is kept warm by hot-water pipes beneath. If kept growing freely in the greenhouse they will bloom in late summer, but they will not, of course, make very big plants the first year.

CASSIA CORYMBOSA.—A fine evergreen climbing plant that in summer has rich yellow blossoms. It is best suited upon a wall, against which its long growths may be trained. I have recollections of it growing with Bougainvillea on the back wall of a greenhouse, but while the latter had a sunny spot, the Cassia was more or less in the shade.

CELOSIA.—Perhaps the most popular Celosias are the Cockscombs, with curious, flattened heads of bloom in brilliant colour shades, chiefly of red, crimson and yellow. They do not seem to be grown so much as formerly, and the more graceful, feathery forms of Celosia have largely supplanted them. The latter are much used for greenhouse decoration and for summer beds out of doors; both kinds are extremely handsome when, and only when, well grown. They are raised from seed sown in a warm greenhouse in February or early March. It is most important that the plants should be grown quickly and without check. For this reason the best growers make up a hotbed of manure and leaves and grow the plants on this until the flower heads show. Care must be taken to repot as soon as the roots show in fair numbers through the soil. The final potting is into flower pots 7 or 8 inches wide. The soil should consist of two-thirds turfy soil and one-third dry cow manure rubbed through a sieve. As soon as the plants have passed the seedling stage, a temperature of about 50° is suitable.

CELSIA CRETICA.—This is a charming old flower that is unworthily neglected, especially considering how easily it is grown from seed. A warm greenhouse is necessary for seed sowing, but the plants are grown in a temperature of 50° or so, and to obtain this during the spring and summer artificial heat is not needed. The seeds are sown in spring, and when large enough the seedlings are transferred singly to small flower pots; subsequently they are repotted into those 5 inches in diameter, in which they will bloom. The flowers, which are yellow, are freely produced, and the plants last in bloom a long time during summer and autumn. A fresh stock of plants is raised each year.

CLERODENDRON FALLAX is a handsome plant with large leaves and in autumn bears bunches of scarlet flowers. Coming into bloom in the dull season, and having flowers of such bright colouring, this

plant ought to be more commonly grown. From seed sown February, the seedlings being transferred singly to small pots when an inch or so high, and grown on in the ordinary way, the plants be in full beauty in autumn. Excellent specimens can be grown in 6-inch wide flower pots.

CLIANTHUS DAMPIERI (*Australian Glory Pea*) is a most showy plant, with Pea-shaped flowers, shining bright red and black, but it taxes the skill of even the most accomplished growers. It is raised from seed sown in spring in a warm greenhouse, a compost of turfy soil and peat with sand suiting the plants, when they are large enough to repot. It is not wise to disturb the roots, and for this reason the seeds are sown singly, the seedlings remaining in the same flower pot until ready for repotting. *Clianthus puniceus* and its variety *magnificus* give less trouble and may be trained to the wall pillar or even roof of the greenhouse.

OLIVIA MINIATA.—This is one of the most useful plants an amateur can grow. In fact, it may be kept in a living room the whole year round and be made to blossom there with real success. The plants come into flower in early spring, a characteristic that adds to their value. Their thick, strap-shaped leaves of dark green colouring are always attractive, and the big bunch of orange-red flowers, held on a stout stalk, is particularly handsome. It is a great mistake to give this plant too large a pot—it thrives much better when more or less "root bound," and then should have a weekly sprinkling during the summer months of some fertiliser. When in a pot larger than the roots warrant there is a danger of its receiving too much water, and the soil is apt to become sour. The best time to repot, if repotting is deemed necessary, is as soon as the flowers are over, in spring. Rough turfy soil freely sprinkled with sand suits it well. If it is wished to make several plants out of one large one, all that is necessary is to divide it and repot each growth separately. During the summer months the plants need no artificial warmth, and are best in a cold frame or unheated greenhouse until September, when the warm greenhouse or living room is preferable. During hot weather they need plenty of water, but naturally less during the winter. When the flower spikes begin to show artificial fertiliser may be sprinkled on the soil once a week.

DATURA (*Trumpet Flower*).—This is one of the most striking of all greenhouse plants, and is frequently used for summer planting in the outdoor garden. It bears large trumpet-shaped, white blossoms that are fragrant. The favourite sort is *suaveolens*, another well known is *Knighti*. They thrive best, as a rule, when planted out in a border of sandy soil in the greenhouse, but may be grown, of course, in a large flower pot or tub. During summer copious supplies of water are needed, but in winter, when the leaves have fallen, the soil ought to be kept fairly dry.

DIPLACUS GLUTINOSUS.—This, the shrubby *Mimulus* or *Musk*, is an excellent plant for amateurs, as it is not difficult to grow and lasts

in bloom a long time. Cuttings inserted in sandy soil in a glass-covered frame in spring make roots in a few weeks, and are then potted singly in 2½-inch wide flower pots, using a compost chiefly of turfy soil with which leaf soil and sand are freely mixed. Subsequently they are repotted into 6-inch wide flower pots, and the points of the growth are nipped off to induce a bushy habit. In late summer the orange-coloured flowers begin to show. After flowering is over the shoots are cut back about half-way and less water is given during the winter months. In the following spring the shoots are cut back to within 6 or 9 inches of the base, and if the plants are repotted into larger flower pots they make fine specimens by the end of the summer.

FRANCOA RAMOSA (*Bridal Wreath*).—This is a delightful plant that amateurs ought to grow, but one that very few really do. It is quite easy to raise from seed, sown in the greenhouse in February or March, and the seedlings develop into large, handsome plants that bear tall, slender spikes of small white flowers. The seedlings are potted on as they progress, and during the summer the plants are grown in a frame. The only drawback from an amateur's point of view is that though a few may produce flowers in the autumn of the year in which seed is sown, most will not bloom until the next summer. They are, however, in full flower in August, and may be relied upon for a good second display the following season. Thus we need only sow seeds every second year. They like a soil made up chiefly of turfy soil, a little dried cow manure and sand being intermixed. Careful watering is at all times necessary, but especially when the plants are small. *Francoa appendiculata* has pinkish flowers, but is not so commonly grown as the white *Bridal Wreath* (*ramosa*).

GLOXINIA.—Probably few flowers are admired more than the *Gloxinia* when well grown plants are seen, and considering how easy it is to raise them from seed, there is no reason why amateurs possessing a heated greenhouse should not succeed with them. From seed sown in February, plants may be had in bloom the following summer. Of course, the roots may be kept through the winter and started into growth the next spring. There are many charming colours among the flowers and for rich beauty the up-to-date *Gloxinias* are probably unrivalled. By sowing seeds at intervals during the spring months a succession of blossom may be obtained. The seed is very small, and care is necessary in sowing and in transferring the seedlings from the seed pan to small flower pots. Light, sandy soil is essential for the seedlings, but for the plants two-thirds turfy soil, one-third peat and leaf soil, together with plenty of sand, form a suitable mixture. *Gloxinias* are essentially warm house plants and a minimum night temperature of 60° is necessary. They also need shade, otherwise the leaves, which add so much to the charm of the plants, will be spoilt. Remarkably fine specimens may be obtained by growing the roots a second season. They need only to be stored during winter in a warm greenhouse in the pots in which they were growing. A

convenient way is to place the flower pots on their sides and store them underneath the stage in the warm greenhouse, giving no water during winter. When the flowers are over and the leaves begin to fall, naturally less water is gradually given until by the time the leaves fall the supply is discontinued altogether.

GOMPHRENA GLOBOSA (*Globe Amaranth*).—The charming and uncommon Globe Amaranth is rarely grown, but, nevertheless, is very attractive. There are numerous varieties of various colors. If the flower heads are cut before they are fully open they will keep fresh for a long time. From seeds sown in March excellent plants in 5-inch wide pots may be had by July. An ordinary compost of sifted loam or turfy soil suits them if a little leaf soil is used as well.

GREVILLEA (*Australian Oak*).—This is one of the most graceful and charming plants the amateur can grow either for greenhouse or for table decoration—in fact, it is a most valuable plant for the house and suffers little from such conditions as prevail in gas-lighted rooms and draughty corridors, etc. It will not withstand frost, so to ensure success a slightly heated greenhouse is necessary—one, say, in which the temperature does not fall below 40° in winter. It is raised from seed, but as the seed often takes a long time to germinate and the seedlings for a time make slow progress, the amateur may perhaps do best to buy small plants in the spring and grow them in the greenhouse during summer, using them for home decoration in the winter. They must have shade from sunshine, and need a lot of water at the root in hot weather.

HELIOTROPE (*Cherry Pie*).—Everyone should grow a few plants of Cherry Pie who is able to keep them safe from frost during winter. They may either be planted out in the garden for the summer, or kept in the greenhouse. The Heliotrope is quite easily raised from cuttings in spring. If the old plants are cut back and placed in a warm greenhouse, they will soon start into growth, and the young shoots are taken off as cuttings. If inserted in sandy soil and placed beneath a glass case they form roots in a few weeks, and are subsequently potted and hardened off. Heliotropes make vigorous growth in the greenhouse, and are often seen trained against the wall. They are as easily kept during the winter as Geraniums; frost, of course, is fatal to them, but they die also if left in a temperature much less than 45°. One of the finest varieties is called Lord Roberts.

HUMEA ELEGANS.—This is an especially graceful plant, and frequently used with charming effect in summer gardening. Under good cultivation the plants reach a height of 6 feet or more, bearing elegant plumes of feather-like reddish flowers. Seed is sown in June to produce flowering plants for the following year. The seedlings are raised and the plants are grown during the summer in a cold frame, but in late September they are taken into the greenhouse or a frame that is heated. During the winter somewhat careful treatment is necessary, or the lower leaves will fall off, and if this occurs the

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HYDRANGEAS GROWN IN SMALL (5-INCH WIDE) FLOWER POTS ARE ADMIRABLE FOR GREENHOUSE
 DECORATION IN SPRING.

appearance is to a great extent spoilt. Water needs to be applied with great care; the soil should only be kept fairly moist, not at all wet. If repotted in spring into flower pots 9 inches in diameter, splendid specimens may be grown. From April onwards an unheated frame is all that they need, unless the nights are cold, then artificial heat is necessary to maintain a temperature of 50°. Fluctuations of temperature are to be avoided.

HYDRANGEA.—Those who are acquainted with the gardens in the south-west and southern counties are doubtless familiar with the Hydrangea that grows into large, handsome bushes there. This is, of course, only possible when the plants are able to remain out of doors throughout the winter. One may grow splendid plants in the greenhouse, but, unfortunately, they take up a lot of room, and the amateur's best plan perhaps is to grow small plants, each in a 5-inch pot with one large head of bloom. They are raised from cuttings taken in August, the young growth being used. There is not much difficulty about rooting them in a closed propagating frame in the greenhouse; each cutting is put singly in a small pot filled with sandy soil. The leaves will fall in autumn; the plants are given little water during the winter, but are kept in the greenhouse safe from frost. The way to grow large handsome specimens is, after the plants have flowered, to cut them down to within a few inches of the base, keep them cool and dry again during the winter, and in spring repot, using a slightly larger flower pot. They will soon begin to send out fresh growths, and four of these are selected, the others being rubbed off. When well rooted they are repotted in 7-inch wide flower pots, then they will bloom finely. If still larger specimens are required, of course they must be grown on again in the same way. It is important to cut them back after flowering, otherwise they will not start into growth from near the base, and the result will eventually be seen in what are expressively called "leggy" plants. Doubtless many readers have admired the wonderful blue Hydrangeas that are frequently seen, and may care to know how to make pink Hydrangeas blue. One who accomplishes this with success says the secret of success is to use the following soil mixture when the plants are potted:—Turfy soil, three parts; leaf soil, one part, and a sprinkling of bonemeal and sand. With every bushel of prepared soil is added $\frac{1}{2}$ lb. sulphide of iron; this is first crushed into a powder. When the plants are growing freely and before the flower heads show, they are watered with alum water at the rate of one teaspoonful of powdered alum to one quart of water. This should be given at every alternate watering, and it may be slightly increased in strength after the first fortnight. The other watering may consist of farmyard manure in a liquid state.

LANTANA.—This is a showy and easily grown plant, readily raised from cuttings in spring in the same way as the Heliotrope. The flowers are of many brilliant colour shades—orange, yellow, red, pink, etc.—and though individually small, are produced in bunches,

and so make a bright display. The old plants may be kept year to year, being cut back in spring. The Lantana is a good plant for summer bedding. When the rooted cuttings are put into flower pots they may either be grown in larger pots for the greenhouse, or they may be hardened off for planting out of doors.

LIBONIA FLORIBUNDA is a useful greenhouse plant that blooms during the winter. The tube-shaped flowers are red and yellow. It is not at all difficult to grow from cuttings taken in spring and inserted in sandy soil beneath a bell-glass in the warm greenhouse. During the summer the plants need only the temperature of an ordinary greenhouse; that is, about a minimum of 50°. If grown in a frame and kept close to the glass during the summer months, young shoots being pinched once or twice to keep the plants bushy, these will develop into excellent specimens by autumn, when they may be removed to the greenhouse. The night temperature of the frame should not fall below 50°, therefore artificial heat may sometimes be necessary.

LOBELIA.—One of the most charming of Lobelias for the greenhouse is *tenuior*, a slender plant with lovely blue flowers. It is easily raised from seed sown in a warm greenhouse in spring, and will flower during summer. The free-growing forms of *Lobelia speciosa* (not the compact growing sorts) are also useful, and may either be raised from seeds or from cuttings in spring to produce flowering plants the following summer. Turfy soil with which a little leaf soil and sand are mixed suits them well.

MARGUERITE (Paris Daisy).—Probably no plant enjoys a greater popularity among amateurs than this, and considering the little trouble it gives and the abundant blossoming that rewards the grower, this is scarcely surprising. When the old plants start into growth in spring, they are cut back, each stem to within a few buds of its base, and when the fresh shoots are about two inches long they are taken off as cuttings and inserted in sandy soil under a bell-glass. If repotted as becomes necessary the rooted cuttings soon form good plants, useful either for the greenhouse or for planting out of doors for the summer months. Fine specimens may be grown if the old plants are not too severely pruned for cuttings. Some of the shoots may need removing if they become crowded later on. The leaves of the Marguerite are often disfigured by a maggot that finds its way beneath the leaf covering and leaves in its train a series of whitish streaks. By holding the leaf to the light the maggot may be seen and crushed. It is advisable to spray the leaves occasionally with paraffin emulsion to prevent the eggs being deposited. Fumigating with Autoshreds is a reliable remedy.

NERINE (Guernsey Lily).—The Nerines are very beautiful greenhouse bulbous plants that flower principally in the autumn months. Botanically they are divided into two groups, in one of which the flowers are for the most part of some shade of scarlet or vermilion.

and in the other rose and carmine predominate. Beside the number of original species many garden varieties have been raised. For all this, one of the oldest is still one of the best, namely, *Nerine curvifolia*, which is far better known in gardens and nurseries as *Nerine Fothergilli*. It is one of the largest, and the flowers are scarlet. In *Nerine corusca* the flowers are smaller and of vermilion colour. The Guernsey Lily (*Nerine sarniensis*) is one of the best known of the *Nerines*. Of the other section, especial mention may be made of *Nerine flexuosa*, with rose-pink blossoms. There is a variety of this with pure white flowers, the only white *Nerine* that we have. The largest individual flowers, rose-pink, are those of *Nerine Bowdeni*, a comparatively new sort. As most of the *Nerines* are natives of the southern part of South Africa, they are, as might be supposed, strictly greenhouse plants. The bulbs may with advantage be allowed to remain in the same pots for years—they will flower all the better. From this it is evident that the potting compost must be good. A suitable soil consists of turfy soil with a free sprinkling of silver sand. If the turf is clayey it may be lightened by the addition of a little leaf mould. Repotting, when necessary, is best done directly the flowers are over. The compost must be pressed down moderately firm. The leaves are produced either after or at the same time as the flowers, consequently the plants grow throughout the winter and spring months. During winter they need a light position in the greenhouse and are not put under the stage, as is so often done with bulbous plants when the blossoms are over. Throughout the season of growth the roots must be kept regularly supplied with water; but as spring advances and the leaves commence to turn yellow, the supply is diminished, and when the bulbs are dormant, discontinued altogether. A good place for *Nerines* when dormant is in a cold frame with the lights on, but at the same time tilted so as to admit air, or they may be placed on a sunny shelf in the greenhouse. Usually during the month of August the earliest, such as *Nerine Fothergilli*, will commence to push up their flower spikes, and as soon as these are seen the pot should be soaked in a pail of water, as an ordinary watering will not serve to moisten the ball of earth. The members of the *flexuosa* section often produce the flower spikes simultaneously with the leaves, but in the case of *Fothergilli* and *corusca* the flower spikes come first.

NERIUM OLEANDER (*Oleander*).—In olden days the *Oleander* was far more often met with in gardens than now, being frequently grown in tubs or large pots, wintered in the lofty conservatories then in vogue, and stood outside in a sheltered, sunny spot during the summer, in company with Oranges and similar plants. The propagation and cultivation of the *Oleander* is not at all difficult, for cuttings of the young shoots taken in spring when they have lost their succulent character and become slightly woody, will, if dibbled into pots of sandy soil and placed in a close propagating case in a warm greenhouse, soon form roots; even in bottles of water in a warm glass-

house they will quickly push forth roots. In the latter case care must be taken that the delicate roots are not injured in for, being developed in water, they are naturally very brittle. A suitable soil compost for the varieties of Oleander may be made of two parts turfy soil to one part each of leaf mould and well rotted manure, with a sprinkling of silver sand. The Oleander thrives under ordinary greenhouse treatment, but one necessary precaution is to pinch out the points of the young shoots two or three times to form a sturdy specimen. When they are established in pots 6 inches in diameter they may with advantage be stood out of doors during the summer months. In this way it is possible to obtain a few but to get the best results larger plants are necessary. They are best grown in large pots or tubs, or planted out in a sunny part of the garden. The Oleander flowers particularly well when planted at the end of a lean-to greenhouse facing the south, then reaching to the top of the structure and each summer being laden with blossoms. If the atmosphere of the house is kept too dry red spider is apt to attack the leaves, and will cause many of them to fall. Syringing frequently helps to keep the plants free from these pests. A particularly large scale insect sometimes makes its appearance and increases rapidly unless got rid of. This can be done by spraying with soft soap and water.

NIERENBERGIA.—When seed sowing is in full swing in the greenhouse in February and March, let not this graceful plant (with its relation to that of the Potato) be forgotten. There are two sorts worth growing: *gracilis*, white flowers streaked with purple and yellow centred, and *filicaulis*, lilac-coloured, also with yellow centre. Both are easily raised from seed sown in spring in a warm greenhouse. If, when 1 or 2 inches high, the seedlings are transferred from the flower pot or pan in which they were sown to pots 4 or 5 inches in diameter, putting three or four seedlings into each, plants that will bloom in the summer are easily obtained. A soil made up of sifted turfy soil with some leaf soil and sand freely mixed in, suits them best. They are of slender growth and need careful watering.

SCHIZANTHUS (*Butterfly Flower*).—This is a charming flower of quaint form and more or less butterfly shape and varied colour, that the veriest tyro may grow, but only the accomplished amateur will grow well. I have grown it in a sunny, unheated greenhouse from seed sown in February, and have had tolerably good plants in bloom the whole summer through. At least, I thought they were past their good until I saw plants in 8-inch pots some 2 feet high and in flower through, from seed sown in September. And this is the month in which all possessors of a heated greenhouse should sow. If the seedlings are put in a 5-inch flower pot (being transferred from the flower pan in which seeds were sown) filled with two-thirds turfy loam soil and one-third leaf soil and sand, and are kept on a shelf about 18 inches away from the glass, the little plants will keep strong

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A GREENHOUSE GROUP OF THE BUTTERFLY FLOWER (SCHIZANTHUS) IN VARIETY.

throughout the winter. "Stop" the shoots two or three times. In February they are repotted into 7- or 8-inch flower pots giving them nice turfy soil. By May there will be so many flowers as almost to obscure the leaves. *Schizanthus wisetonensis* varieties are in all sorts of charming shades, so varied that I hesitate to describe them. Then there are *pinnatus* and *retusus*, the latter particularly richly coloured.

SOLANUM.—The most useful *Solanums* for the greenhouse are *jasminoides* and *capicastrum*. The former is a charming climber of slender growth, and bearing loose bunches of pale, lilac-coloured blossoms. The latter is a favourite and very familiar plant sold in large numbers by florists when covered with its round, bright-red fruits as the Cherry Plant. The climbing *jasminoides* is an attractive plant for training up the roof rafters; if planted out in a large box or a small bed of turfy soil, with which a little leaf soil and sand are intermixed, it soon makes good growth. The pruning, which is done in early spring, is directed towards cutting out weak shoots and cutting back all side shoots to within two or three buds of the base. The berried *Solanum* is raised from seed or cuttings. Cuttings are prepared in spring from the young growths that form after the old plants are cut back. If put in small pots filled with sandy soil in February or March, the pots being covered with a bell-glass, they soon form roots. When rooted they are put singly in small pots, and subsequently are repotted into 4- or 5-inch flower pots, in which they will bloom and form fruits. During the summer months the best place for them is a frame, since they need to be grown quite cool and to have plenty of fresh air, especially when in flower, otherwise the fruits will not form freely, and then the plants are scarcely worth growing. In September they are again brought into the greenhouse, when the fruits will quickly increase in size and take on their rich colour. After the beauty of the plants is over they are shortened back to induce fresh growths for cuttings. It is best to raise fresh plants each spring.

WALLFLOWERS FOR THE GREENHOUSE.—The different Wallflowers are so generally regarded from an outdoor standpoint that their value for the decoration of the greenhouse is too often overlooked. Despite this they form a delightful feature in a cool greenhouse, where there is just sufficient heat for them to anticipate their usual season of blooming in the open ground. Seed sown early in April will give plants that in autumn become sturdy specimens that can be potted and placed in a cold frame previous to taking them in the greenhouse. If there is no frame available they may, when potted, be stood in a sheltered position outside, and taken into the greenhouse as required. If seed is obtained from a reliable source, the different colours can be depended upon to come true, and that is a great advantage. Two rich-coloured varieties are Ruby Gem, ruby violet, and Vulcan, velvety crimson. The Dwarf Dark Red is also good, and Best Yellow, as well as the Golden Tom Thumb, must not be omitted. Of more uncommon tints may be mentioned Primrose Dame and Salmon Queen. In any

selection of Wallflowers for the greenhouse the Double German on no account be omitted, as they are somewhat Stock-like in growth and bear large terminal spikes of double flowers, deep coloured, yellow and striped sorts being found amongst them. For flowering in glass during the winter months a near ally of the Wallflowers, namely *Cheiranthus kewensis*, merits at least a passing notice. This was raised some years ago by crossing *Cheiranthus mutabilis* with *Cheiranthus Cheiri*. The flowers are of various shades—yellow, buff, blue and pale purple—according to the time they have been opened. Less showy than the Wallflowers, but blooms continuously throughout the winter, and what is more, the blossoms are deliciously fragrant as are, indeed, all the forms of the common Wallflower.

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CHAPTER XXXIII

CACTUSES AND FERNS FOR THE GREENHOUSE

ALTHOUGH the cultivation of Cacti does not play such an important part in present-day gardening as it did forty or fifty years ago, there are signs of a revival of interest in this weird and strange plant family. This revival is perhaps more apparent amongst amateur than among professional gardeners, and the reason is not difficult to find. A professional gardener has a wide and varied collection of plants to deal with, and it rarely happens that he has the necessary space at his disposal for the cultivation of plants which cannot be used for general decorative purposes, consequently he is content with a few of the more showy groups. The amateur with a greenhouse, on the other hand, finds that Cacti suit his requirements better than a mixed collection of greenhouse plants. They may be grown with the minimum amount of attention, and the man who is away from home all day does not fear that his plants will be spoilt during his absence by unexpected bright sunshine or by their being left a few hours longer than they ought to be without water. The amateur who obtains a few specimens rarely rests until he has filled all the space at disposal with plants. Some of the finest collections that have ever been brought together have been commenced in a very small way in the hands of amateurs. Neither is it necessary for the Cactus grower to own a greenhouse, for some kinds grow well in the window of a dwelling-house. Sunshine is very necessary for the well-being of all kinds of Cacti; they are natives of the dry, arid regions of America, where rain is almost unknown.

Cacti, as a rule, are distinguished by thick, fleshy, moisture-filled stems, clothed with tufts of spines, which in some instances are 2 inches or 3 inches long, and of a formidable character. In other cases they are in the form of strong hooks, whilst, again, they may be reduced to stiff hairs or to long, silky appendages. Now and then strong spines are attended with small patches of stiff hairs, which are easily detached and cause inconvenience by becoming embedded in the skin. *Opuntia*, the Prickly Pear family, has this peculiarity. Many Cacti are singular by reason of their curiously jointed, flattened, or angled stems. Some Cacti rarely grow more than 2 inches or 3 inches in height, and form dense masses of tiny rosette-like growths, others grow into dense, globular, many-angled stems which take many years to reach 2 feet in height. Some grow 15 feet or more high with straight, strong stems which have conspicuous channels from top to bottom. Others are

characterised by scandent, or climbing, branches, whilst others have many-jointed stems, the sections of which easily become detached and take root where they fall. The root system is small in comparison to the top, though what roots there are are capable of travelling to a considerable depth. In their native habitats the roots penetrate deep enough to obtain the necessary moisture for the plant's existence.

The novice in Cactus culture will probably receive his greatest surprise when his plants flower. From such curious, spiny stems one might naturally expect flowers of unattractive appearance and of a most but of weird shape. Yet most Cacti bear flowers of an extremely showy character. In some instances they are nearly a foot in diameter, accompanied by a delicious perfume and of a lovely, white, cream or buff colour with a large mass of golden stamens. Again, they may be 4 inches or 5 inches in diameter with crimson, pink, rose or orange blooms, whilst others are quite small. Perhaps the height of perfection is reached in certain kinds of *Cereus*, of which *Macdonaldia triangularis* may be given as examples. From the curious, dry-looking branches gorgeous blossoms, 9 inches or more across, appear, and on opening, are attended by an exquisite fragrance. Unfortunately the flowers of these kinds are very fugitive and have the peculiarity of opening about dusk in the evening and fading soon after dawn the next morning. This trait in their character has given rise to the common name of "Night-flowering Cactuses." When these plants were first introduced, the owners were in the habit of issuing invitations to their friends to attend the opening of the flowers. It is often that fruits are borne under glass, but when this does not, the fruits of some sorts are very ornamental. Those of *C. triangularis* are red in colour and shaped like a small coco-nut.

Cacti, as a rule, may be said to dislike frequent repotting, as they need comparatively little soil. When repotting is necessary, the pots very little larger than those occupied by the plants previously should be given. Thorough drainage is an essential to success, and a satisfactory compost may be made up by mixing two parts of loam with one part of soil to one part made up of leaf mould, old mortar rubble, small pieces of sandstone and sand. During the growing season a fair amount of water is required, and the stages and paths of the house must be kept damped two or three times a day; but throughout winter, the plants must be kept dry, but not dry enough to cause them to shrivel. The atmosphere of the house must be kept dry also. Full sunlight is necessary at all times. A minimum winter temperature of 50° will suffice for the majority, but many may be allowed a minimum temperature of 45°.

An easily managed and showy group is obtainable in *Phyllocactus*. Compared with many Cacti, they are of quick growth, whilst they blossom freely and bear very showy flowers, which on different varieties range from white to pink and deep red. Cuttings root easily in summer. *Epiphyllum* is another showy kind. It requires a fairly high temperature.

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THE WHITE JAPANESE LILY (*SPECIOSUM KRAETZERI*) AS A GREENHOUSE FLOWER.



ture and a moderately moist atmosphere. Red, white and scarlet flowered forms are known. They are usually increased by grafting on stocks of *Pereskia*. The *Cereus* exhibits a great variation amongst its numerous members, for some are amongst the giants of the family, others are quite dwarf and others again of scandent habit, as previously instanced by the night-flowering kinds. A few suitable kinds to grow, in addition to those mentioned, are *C. aggregatus*, *albispinus*, *Dyckii*, *Engelmanni*, *ensatus*, *flagelliformis*, *grandiflorus*, *Lemairii*, *pentagonus*, *rostratus*, and *speciosissimus*. A Cactus that creates a great deal of interest when at maturity is *Melocactus communis*, commonly called "Turk's Cap Cactus," on account of the inflorescence resembling a Turk's headdress. Unfortunately, it is of very slow growth, and it is rarely that a flowering example is seen unless a mature plant is imported. The *Mammillaria* family is a useful one for the amateur, for all are of neat growth, and take up little room. *Opuntia*, the Prickly Pear, on the other hand, consists of vigorous-growing plants which require plenty of room.

GREENHOUSE FERNS.—Ferns, being a non-flowering race of plants, do not produce seeds, but are increased by means of spores. To find these one has but to look beneath a mature frond; there some dark patches, disposed either in dots or lines, will be found. Within these patches the spores are contained. To the naked eye the spores appear like very fine dust, varying somewhat in colour according to the kind. To propagate ferns from spores this dust-like substance is sprinkled on the surface of a pot of soil, which is covered with a pane of glass until growth begins. The pot for sowing the spores is prepared by half-filling it with broken crocks for drainage; upon this is placed a compost made up of two parts each of turfy soil and peat and one part of sand, the whole being pressed down moderately firm and made quite level about half an inch below the rim of the pot. The soil is then saturated, a good plan being to immerse the pot almost to the rim in a pail of water. The water will percolate through the whole of the soil. In an hour or so the spores are sprinkled lightly on the moistened surface, and the pot covered with a square of glass. The flower-pot is placed in a shaded spot, and the soil kept moist. The first signs of germination are in the form of a moss-like substance covering the soil, from which in time fronds will be pushed up. Close inspection shows that the moss-like growth is made up of tiny green scales. If these scales are too dense they are apt to decay, and in order to prevent this they are transferred to fresh soil. Prepare the soil and flower pots as already recommended and, with a small, pointed stick, take up a little tuft of the growing spores, and dabble them into the fresh soil at about half an inch apart. They are then watered through a fine rose and treated as before. As soon as the fronds make their appearance the glass must be removed, and when the young plants are sufficiently advanced they may be potted singly into small pots.

Propagation by division.—Many Ferns are more or less of habit of growth; that is to say, they produce several "crowns" from which fronds are pushed up. Such kinds, for the most part, admit of ready increase by division; they may be split up, care being taken that each piece has roots. This mode of increase is best carried out in spring before the young fronds push up, as then the plants are resuming their activity. The divided portions should be kept without delay and heavily shaded for a few weeks. This system of increase is, as a rule, only carried out on a limited scale, for the most part. Ferns are grown in large quantities they are propagated by means of spores.

A few Ferns are viviparous; that is to say, perfect little plants are borne in greater or lesser numbers on the old fronds. *Asplenium bulbiferum* is a well-known example of this. To increase these by this method all that is necessary is to take the old frond with its crop of plantlets and peg it on the surface of a pot or pan filled with soil. Thus brought in contact with the soil the tiny plants soon form roots and grow freely. They should be well shaded until roots are produced.

Soil mixture. Repotting.—At one time a large proportion of the soil was considered necessary for Fern-growing in flower pots, but this is not now regarded as of so much importance. Most Ferns are well suited by "ordinary potting compost"; that is to say, a mixture of parts of turfy soil and peat or leaf mould, with a free sprinkling of silver sand. The turf and peat must be pulled to pieces with the hands, not sifted, and all ingredients need to be thoroughly mixed together. The best time to repot Ferns is in early spring. It is a great mistake to repot a Fern in a larger pot than is necessary. As a rule, a pot one size larger is big enough, while in some cases the size of the pot need not be increased. It all depends upon the condition of the roots. The fresh pot should be quite clean and effectively drained. The crocks are removed from the Fern to be repotted, and as much of the loose soil as possible is taken away. In repotting the soil is pressed down evenly all round and made moderately firm. When the plants are well filled with roots, Ferns need copious supplies of water for a few weeks after repotting much less is required. Of course less is required in winter than in summer. It is a mistake in hot weather to leave the plants standing in saucers of water. A fairly moist atmosphere is favourable to Ferns in general; if too dry the leaves are apt to be attacked by insect pests.

FERNS IN BASKETS.—Many Ferns of creeping habit of growth, as well as those with creeping stems, or rhizomes as they are termed, are suitable for growing in suspended baskets, under which conditions they are seen to great advantage. The basket should, if possible, be lined with the large patches of moss often to be found in woods. This prevents any of the soil from passing through. It should be placed with the green side outwards. If the lining is carefully done the loose soil

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give no trouble. The Fern or Ferns are planted in the basket just as if they were in a pot, and when finished a good watering is given. The watering of hanging baskets is sometimes a troublesome matter, though with care it can be effectually done with a can having a "rose" on the spout. Should the soil get very dry the most effective way of watering is to take it down and soak it in a pail or tub of water.

TREE FERNS.—These always arrest attention by reason of their uncommon and stately appearance, and those that are natives of Australia and New Zealand thrive in a greenhouse temperature (say, minimum at night in winter 50°). They may be grown in tubs, or planted out in a border; in either case plenty of water and thorough drainage are essential. The stems, too, must be kept as moist as possible, for many live roots are grown therefrom. Tree Ferns benefit greatly if the stems are covered with Sphagnum Moss, as this retains water and keeps the trunks uniformly moist. In other respects, Tree Ferns need the same treatment as that already detailed.

FILMY FERNS.—Most of these grow in dense shade and in damp spots, so that the fronds are for the greater part laden with moisture. Many of them have fronds of a peculiar translucent nature, which give them a most distinct appearance. The Filmy Ferns are very beautiful, but their cultural requirements are so exacting that they cannot be recommended generally. They thrive best in glass cases in a heavily shaded greenhouse facing north. They grow, as a rule, in vegetable débris, and under cultivation do best in a mixture of fibrous peat and live sphagnum moss. The Killarney Fern is the best known of this class, but there are a number of others natives of temperate regions and elevated districts in the tropics.

FERNS IN THE HOME.—A few Ferns succeed remarkably well in the dwelling-house. In the first place, whether in saucers, vases, or jardinières, water must not be allowed to stand therein, otherwise the plants will soon fall into ill-health. The same thing happens if the roots are allowed to get too dry, for Ferns are lovers of moisture at the roots. The best way of watering is to immerse each in a pail of water until the whole of the soil is thoroughly soaked. They are allowed to drain before being taken indoors again. Dust is very apt to accumulate on the fronds, and Ferns cannot be sponged in the same way as smooth-leaved plants like the Aspidistra. They may, however, be syringed lightly or watered through a fine-rosed can. Ferns growing in rooms should be placed out of doors during gentle summer rain. It is often inconvenient to shift them into larger pots when they require it. In this case the plants will be greatly benefited by an occasional sprinkling of artificial fertiliser, as, for instance, guano. The small-growing kinds of Ferns may be successfully cultivated in a window-case, and in this way they form a delightful indoor feature. The case should, if possible, be stood in the light of a window, but at the same time it should not be exposed to direct sunshine.

SELAGINELLAS.—The Selaginellas are nearly related to the Ferns and need much the same treatment. Some of them are Moss-like and of creeping habit of growth, while others are taller. One, *Selaginella kraussiana* or *hortensis*, is often grown in large numbers as an edging plant in the greenhouse. *Selaginella uncinata* or *capitata* is remarkable for the metallic blue of its foliage, and *Selaginella selaginoides* for the changes in colour that the plant undergoes at different periods of the day.

THE BEST FERNS FOR HANGING BASKETS.—*Acrostichum scandens*, *Adiantum amabile*, *Adiantum assimile*, *Adiantum ciliatum*, *Adiantum Collisii*, *Adiantum cuneatum grandiceps*, *Aglaomorpha Meyeniana*, *Asplenium flaccidum*, *Davallia bullata*, *Davallia dissecta*, *Davallia fijiensis*, *Davallia lawsoniana*, *Davallia tenuifolia*, *Davallia Tyermanii*, *Nephrolepis exaltata furcans* and *Nephrolepis exaltata superba*.

FERNS FOR THE HOME.—*Adiantum cuneatum*, *Adiantum decorum*, *Asplenium bulbiferum*, *Asplenium Colensoi*, *Asplenium nidus*, *Cyrtomium falcatum*, *Cyrtomium Fortunei*, *Davallia bullata*, *Davallia dissecta*, *Davallia lawsoniana*, *Davallia Tyermanii*, *Nephrolepis Amerpohlii*, *Nephrolepis cordifolia*, *Nephrolepis exaltata*, *Nephrolepis exaltata furcans*, *Nephrolepis todeoides*, *Onychium japonicum*, *Osmunda palustris*, *Polypodium aureum*, *Pteris arguta*, *Pteris cretica*, *Pteris cretica albo-lineata*, *Pteris cretica major*, *Pteris serrulata*, *Pteris serrulata cristata*, *Pteris tremula*, *Pteris Wimsetti*.

HARDY FERNS.—These are very useful for planting in moist and half-shady positions. If the soil is heavy, brick rubble, leaf-mould and sand should be mixed in. There are evergreen and leaf-losing Ferns; the dead fronds of the latter should not be cut off until early spring. Late February and early March are the best times to plant. Among the best evergreen sorts are the Soft Shield Fern (*Aspidium angulare*) and its beautiful plumose varieties, e.g. *cristatum*, *dissectum*, *multifidum*, *proliferum*; the Hard Shield Fern (*Aspidium aculeatum*) and its varieties, *meritum* and *multifidum*; the Hartstongue (*Scandium pendulum vulgare*) and its varieties, *crispum*, *Kelwayi*, etc.; the Horn Fern (*Blechnum spicant*) and its various forms, e.g. *cristatum*, *linearifolium*, *concinnum*; the British Polypody (*Polypodium vulgare*) and varieties, for instance, *cambricum*, *cristatum* and *bifidum*. Among the leaf-losing Ferns are the Male Fern (*Nephrodium Filix-mas*) and its varieties, *cristata*, *furcans*, *polydactyla* and others; the Lady Fern (*Asplenium Filix-femina*), of which there are hundreds of varieties, e.g. *cristatum*, *furcans*, *grandiceps*, *Stansfieldi*; the Royal Fern (*Osmunda regalis*), the noblest of all; the British Maidenhair (*Adiantum Capillus-Veneris*); *Asplenium Ruta Muraria* and *Cystopteris fragilis*.

TREE FERNS.—*Alsophila australis*, *Alsophila excelsa*, *Cibotium regale*, *Cibotium Schiedeii*, *Cyathea dealbata*, *Cyathea medullaris*, *Dicksonia antarctica*, *Dicksonia squarrosa*.

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CHAPTER XXXIV

HOTHOUSE FLOWERS

ACALYPHA.—There is only one that I need mention for the value of its flowers, namely, *sanderiana*. This is a striking plant with long, drooping, slender flower trails of bright red colouring. Under good cultivation they reach a length of 2 or 3 feet, and are then most decorative. It is raised without difficulty from cuttings in spring. Several *Acalyphas* are distinguished by handsome leaves, among the best being *godseffiana*, green and white; *musaica*, red, green and yellow; and *tricolor*, variously coloured. These, too, are readily increased by cuttings, which are put in small pots filled with sandy soil and placed in coco-nut fibre in a glass case in the hothouse. The *Acalyphas* with handsome leaves need to be grown in a sunny spot, so that the colouring may be well developed. In the shade the leaf tints are not so rich.

ALLAMANDA.—This is perhaps the most gorgeous of all stove climbing plants. The large, lovely yellow flowers are freely produced, and when at their best make a splendid show. Each spring before the plants start into growth, the shoots are cut back to induce vigorous growth, for the blossoms are borne on the green shoots. During the winter months the soil in which they are planted is kept almost, though not quite, dry. *Allamanda grandiflora* and *Schottii* are two of the . . . both have yellow blooms.

ALOCASIA.— . . . with large and handsome leaves, variously marked in green . . . white. They need large flower-pots and a soil made up of half peat and half turfy soil, with plenty of sand intermixed. *Thibautiana*, *metallica* and *zebrina* are some of the chief sorts.

ANTHURIUM.—These are among the most handsome of hothouse plants; the leaves are large, and some of them are very beautiful, while the flower spathes are variously coloured, though chiefly red. There is not much difficulty in growing them providing the pots are well drained with a plentiful supply of crocks. The compost usually consists chiefly of peat and sphagnum moss, with a little rough turfy soil. They are grown in a warm, moist atmosphere. I think the most handsome of all is *crystallinum*, which has very large heart-shaped leaves, velvety green with whitish veins. This and *veitchianum*, with long and narrower leaves of curiously wrinkled appearance, will grow into plants of remarkable size. I remember some giants of which I had the care in Baron Rothschild's garden at Ferrières-en-

Brie, near Paris—a garden noted for its collection of hothouse plants. They were grown in large tubs, and must have been at least 6 feet high. Of those of value as flowering plants *schertzerianum* is the most popular; it has bright red flower spathes. There is a variety of this, but it is not so valuable as the red one. A variety called *ferrière*, with red spathes, is also commonly grown. If an amateur wishes to effect an increase of stock it is simply done by pulling the plant to pieces in spring, and repotting each piece singly in a fresh pot.

APHELANDRA.—Amateurs possessing a hothouse should not neglect to grow this beautiful plant, which has the merit of flowering in winter when its orange-coloured flowers are most showy. *Aurantiaca* and *Roezlii* are the two best. They are grown from cuttings inserted in spring.

ARALIA.—Although *Aralias* may be grown in the cool greenhouse, they are most successful in the hothouse. Need I say that their value lies in the pretty, graceful leaves, a quality that makes them especially valuable for table and room decoration, for which purposes they are usually grown. *Elegantissima* and *Veitchii* are two of the most attractive. They are commonly increased by grafting, so that an amateur who does not feel equal to attempting this will be well advised to buy a few plants.

BIGNONIA.—These are fine climbing plants for the hothouse, which all are seen at their best with the exception of *capreolata*, which is hardy. They have tube-shaped flowers in rich glowing colors. *Tweediana*, yellow, and *venusta*, orange red, are among the showiest. They bloom in summer, and are so handsome as always to be admired.

CALADIUM.—This is a plant with giant leaves variously and beautifully marked that is beloved of the nurseryman for grouping at flower shows, but it is not commonly grown in gardens for the reason that its foliage is soon damaged, and thus its value for decorative purposes is lessened. The *Caladium*, like the *Dahlia*, has a tuberous root, and thus goes to rest after its beauty is passed. All one has to do is to take the roots out of the pots of soil in which they have passed the winter, and repot them, using a soil composed of half peat and half turfy soil, with a free sprinkling of sand, just covering the roots. It is best to start the roots into growth in small pots, and to repot into larger pots afterwards. They make rapid progress, and are at their best in early summer. As the leaves show signs of fading the plants are given gradually less water, and eventually, as the leaves die off, the water is discontinued altogether. One of the prettiest of all is called *argyrites*, a charming little plant with small green and white leaves. It grows only about 9 inches high, and in most gardens is largely grown for decorative purposes. It will stand rough usage better than the large-leaved sorts. It is scarcely necessary to give the names of the varieties, for each nurseryman who grows them has his own special

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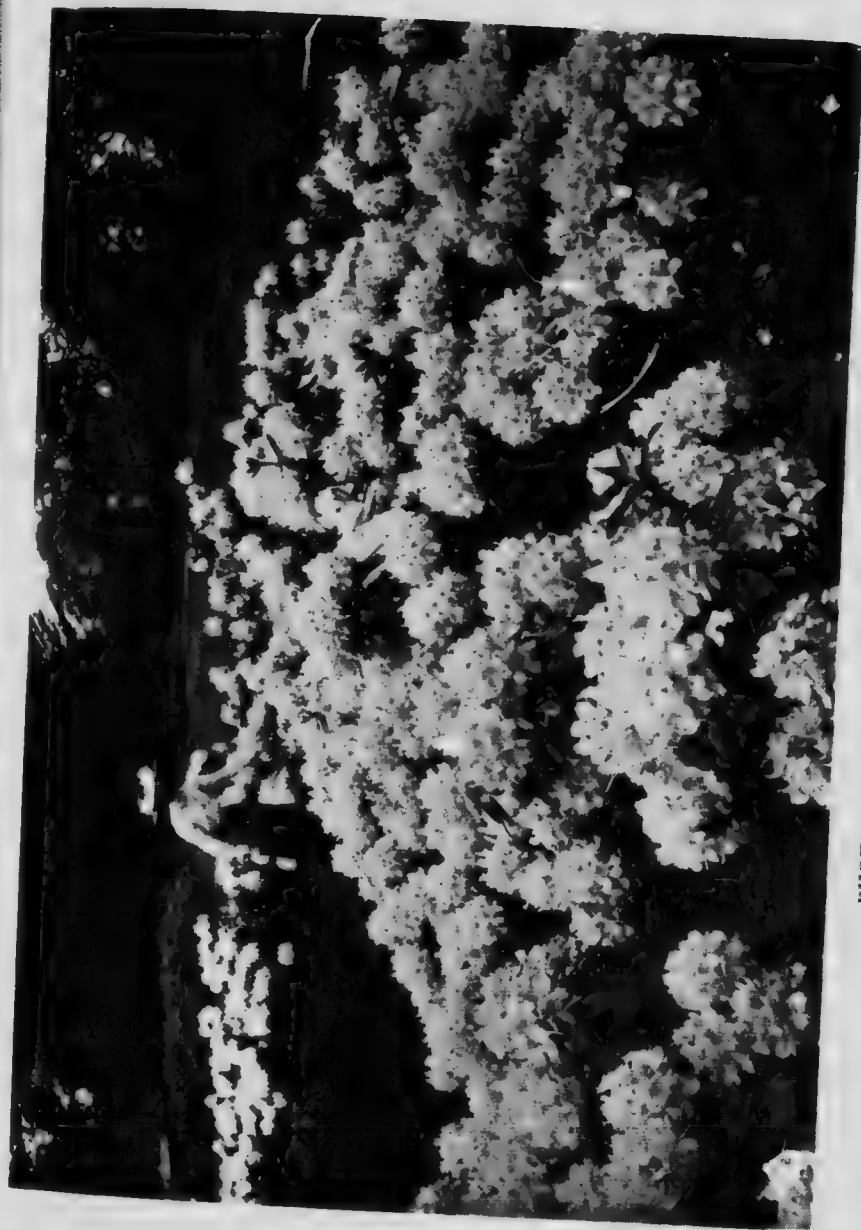
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RHODODENDRON MRS. STIRLING (BLUSH PINK).

sorts. They take up a lot of room, but to those who like handsome-leaved plants the Caladiums are to be recommended. The roots remain in their flower pots throughout the winter, and are commonly placed under the staging in the hothouse, but laid on their sides so that water from plants above shall not reach them.

CISSUS DISCOLOR is of interest to the lover of hothouse plants. Its value is in the leaves and climbing habit. It is scarcely surpassed as a plant for covering a pillar, and often pillars are the ugliest parts of an otherwise well-furnished hothouse. The prettily shaped leaves are of curious colouring, red, green, and white predominating. It grows quickly, and is best raised from cuttings in spring.

CLERODENDRON.—Rarely if ever does one see this climber in an amateur's hothouse, yet with its handsome green leaves and quaint bicolored flowers that are freely produced, it is worthy of attention. The best of all is one called Balfouri, with red and white flowers. It thrives best when planted out in a little border of soil, although it succeeds also in a large tub. The soil used should consist of rough turfy soil and peat in equal parts, plenty of sand being intermixed. What pruning is necessary takes the form of thinning out the older growths. It flowers in summer and during winter when at rest needs little water.

CROTON.—One of the first plants I ever grew was a Croton or, as I should now write to be correct, Codiaëum, for since I first made its acquaintance Croton has changed its name. Crotons, to use the name with which gardeners are most familiar, are perhaps the most popular of all hothouse plants with beautiful leaves, and for general usefulness they are not surpassed. They are invaluable for decorative purposes, and are not by any means difficult to grow, providing they have a warm, moist atmosphere, and are not shaded. Then the colouring of the leaves is in many varieties remarkably fine. Cuttings take root readily in a box of sand or sandy soil placed in a closed glass case above hot-water pipes in the stove or hothouse, and when rooted are potted into small pots, and as they need it into larger ones. Another way of increasing the Croton, and a very useful one, is to make a new plant of the top of an old one. This sounds something like black magic, but I assure the reader there is nothing of witchcraft about it, and that it is carried out in gardens all over the country every year. All one has to do is to choose a plant that has become "leggy" or, to put it in more dignified English, one that has lost its lower leaves. This particular gardening operation is known by the name of "ringing," for the reason that a ring of bark is cut off the stem just beneath the lowest leaves. Moss is then wrapped round the cut part, and bound securely by means of raffia, the moss being kept moist by frequent syringing. In a few weeks roots will form and start growing into the moss. Then the old stem is severed, and the rooted top is potted. If kept in the propagating case for a week or two it will establish itself as a new plant, and forthwith may be grown in the

ordinary way. There are innumerable varieties of Croton, of the following form a selection :—

Aigburth Gem, drooping leaves, crimson and pale yellow ; Ch narrow, twisted leaves, green, salmon and yellow ; Golden twisted leaves, crimson, yellow and green ; Fred Sander, yellow green ; Mrs. Clibran, red and yellow ; Queen Victoria, orange and crimson ; Warreni, yellow and carmine ; Weismanni, green yellow.

DIPLADENIA.—This a beautiful hothouse climbing plant of pant growth, and the best, boliviensis, has lovely rose-coloured flowers that are, alas ! very fleeting, but luckily there are many of them. They open in summer. It thrives best, like most hothouse climber when planted in a little border of turfy soil and peat, the proportion of about one-third, and sand being freely mixed.

DRACÆNA.—Among the Dracænas that thrive in the hothouse are found some particularly handsome foliage plants. There is perhaps nothing to excel godseffiana, with upright growths and green leaves marked with cream, while Lindenii, with broader leaves, yellow green, too, is handsome and widely grown. There are numerous varieties with distinctive names and distinguished by graceful forms that give them a value for decorative purposes. An easy way to increase the Dracæna is to cut down an old plant, place it in the propagating case, and when young growths are 3 or 4 inches long, cut them off and insert them as cuttings.

ERANTHEMUM.—The best for amateurs is a blue-flowered plant called pulchellum ; it is easily increased by cuttings put in in spring and it has the great merit of blooming in winter. The individual flowers are rather fugitive, but the plant remains in bloom throughout the winter when blue flowers especially are scarce.

EUCHARIS.—There is perhaps no greater favourite with those who grow hothouse flowers than the lovely white, fragrant Eucharis, which is greatly in demand at Easter above all times. The plants may be grown either in flower-pots, or they may be planted out in a border of soil. They cannot be accounted difficult plants to grow, or at least it is that in many gardens they thrive seemingly with little or no attention. I have seen them planted out in a little border beneath the back wall of a warm greenhouse, and there twice a year they bloom. In fact, for many weeks together one may gather flowers there. They need a rich, loamy soil with which is mixed a little well-rotted manure, and if grown in pots they should be rarely disturbed, but when the pots are well filled with roots should have frequent supplies of liquid manure made by soaking a bag filled with cow manure in a tub of water. The best growers do not "dry off" the plants. Mr. F. Jackson, a gardener living near Hartlepool writes : "The soil mixture that I use is as follows : One part rough turfy soil, half a part peat, half a part

leaf soil with a sprinkling of sand and a little well-decayed manure from an old Cucumber bed. When the pots are full of roots I begin feeding the plants with weak liquid manure (guano for preference). I think some growers partly dry off the plants, but I have never practised this system. I am inclined to think that it rather favours an attack of that dreaded pest, the Eucharis mite. A little weak soot water is valuable as an occasional stimulant. Should there be any signs of mite, I immediately prepare a solution composed of a gallon of soft water, with a wineglassful of paraffin added, and syringe the plants with it; the latter are afterwards syringed with clear water. The plants are kept at the shady end of the house. March is the month in which I do any repotting that may be necessary, but if the plants are growing strongly they are not disturbed for two or three years."

EUPHORBIA.—To see really well-grown plants of *Euphorbia jacquiniæflora* (oh! for a homely name) is at once to have a desire to grow them also. They have long, slender shoots smothered the whole of their several feet of length with small, rich orange-red flowers in bunches. This plant is raised from cuttings each year. After flowering the old plants are kept rather dry at the roots and in spring are cut back, being then placed in a propagating case in the hothouse. When the fresh shoots are 3 or 4 inches long they are taken off as cuttings and, inserted in sandy soil in small pots, soon form roots. The secret of success with this beautiful plant is to grow it quickly during early summer, and then to give it a cooler temperature.

FITTONIA.—This is a charming little plant with prettily marked leaves. It is of trailing habit of growth, and for this reason is often used as an edging to the staging and for covering the little rockery that is often put up in the hothouse. *Argyroneura* is chiefly grown, and has green and white leaves. The *Fittonias* are increased from cuttings without difficulty.

GARDENIA.—Some are attracted by the richly fragrant flowers of the *Gardenia*, while others are repelled by what is called "their sickly odour." There is no doubt that the blooms are too strongly scented to suit all people, and to stay for long in a hothouse full of *Gardenias*, or even in a room in which they are used for decoration, is impossible for many persons, especially ladies. Their chief requirements are warmth, moisture and very little fresh air, except during autumn, when this is necessary so that the growths may be well matured and bloom freely the following year. Cuttings inserted in spring in sandy soil in small pots placed in a closed case above bottom heat form roots readily. *Gardenias* are naturally inclined to get dirty, and are especially liable to be attacked by mealy bug and scale, so that frequent dressings of Fir Tree oil applied with a sponge are usually necessary to keep them clean.

GESNERA.—This is, I always think, one of the most attractive of hothouse flowers. The leaves, of dark crimson shade and velvet

texture, are in themselves very pretty, but the flowers, some like small Gloxinias, are produced in loose bunches overtopping the leaves, and when in bloom the *Gesnera* commands the admiration of everyone. They have tuberous roots that persist from year to year, and are treated like Gloxinias. The old roots pass the winter in pots in which they have flowered, and in spring are taken out and repotted in the way recommended for *Achimenes*. *Cardinalis*, a favourite red-flowered sort, is to be chiefly recommended.

GLORIOSA SUPERBA.—One is inclined to fight shy of a name with such a name as this for the reason that it may be some of a braggart. But the *Gloriosa* is unsurpassed in its own way, and is cordially to be recommended. Its quaint, twisted flowers, golden in scarlet and gold, are sure to prove a distinguished ornament to any hothouse. They may be trained round about the pillars and rafters of the house, or as with many other hothouse climbers, *Allamanda*, *Dipladenia*, *Clerodendron*, they may be grown on trellises, balloon-shaped or flat, as may be preferred. The roots in the form of tubers, therefore the plants go to rest in winter when their beauty fades and the growths die down less water is given in winter, the soil is kept quite dry. They thrive admirably in flower-pots. In March the tubers are taken out of the old soil and are repotted; they will soon begin to grow and should be encouraged to develop quickly and with vigour in a warm, moist atmosphere. When the plants are well rooted in the final pots they may, with advantage, have occasional doses of liquid manure. The fascinating flowers are produced in summer time.

HOYA CARNOSA.—This is the wax flower that is beloved of many amateurs. It can be induced to thrive in a cooler atmosphere than that of a hothouse, but it is at its best in the latter. This plant needs above all things a well-drained and a sunny spot. It is suited for training up the greenhouse wall or pillar, and may be induced to grow round about a balloon-shaped trellis. It is of comparatively slow growth, but its clusters of waxlike flowers are curious and welcome. The soil in which it grows needs to be kept rather dry during winter.

IMPATIENS.—There are two *Impatiens* well worth growing, namely *Sultani* and *Holstii*, with bright rose red flowers. They are grown from seeds in spring, or they may be increased by cuttings made from the young shoots that develop after the old plants are cut down. Turfy soil with which some well-rotted manure is mixed suits them as they like a rich compost. The plants are quite suitable for the greenhouse during the summer months.

IPOMŒA.—There is one very beautiful *Ipomœa* worth growing in the hothouse, namely, *rubro-cerulea*, with large flowers of wonderful blue colouring. The individual flowers are soon over, but a succession is kept up. It is raised from seeds sown in spring. A few plants smothering the pillars and part of the roof form a gorgeous sight.

soil consisting of rough turfy soil with sand and a little rotted manure intermixed form a suitable compost.

IXORA.—A shrub with evergreen leaves that is not commonly grown by amateurs, but is beloved of those nurserymen who grow large specimen plants for show purposes. When in full bloom they are certainly handsome, the richly coloured flowers being borne in rather flat bunches, and are chiefly of orange red shades. They are not very quick growing, and take some years to form large plants. They are increased by cuttings, and thrive in a soil consisting of equal parts of peat and turfy soil. Williamsi, salmon red, Duffi, red, Prince of Orange, orange red, and coccinea, are some of the best sorts.

JACOBINIA.—This is an old plant, the sort commonly grown being coccinea, with red blossoms. The showiest of all is distinguished by the unfortunate name of chrysostephana, with very handsome, rich yellow blooms. These are produced at the top of the plant in an upright bunch, and have an added value in that they bloom in winter. The plants are easily raised from cuttings taken in spring, and thrive well in turfy soil with a little leaf soil intermixed.

MEDINILLA.—This is a fine old plant now not at all usually grown. It makes a handsome specimen, and its large, drooping bunches of pink blossoms are certain of admiration. Ten years ago it was a popular hothouse plant, but it seems to have gone out of cultivation. Yet the large, attractive leaves, stems curiously winged, and bright blossoms merit a return to popularity. They are not at all difficult to grow, and ordinary turfy soil suits them if good drainage is provided in the flower-pots. One point in their favour is that they do not often need repotting, they may remain in the same pots for several years. The finest of all is magnifica.

PALMS.—Most Palms revel in heat and moisture, though many are accommodating and may be grown in the cool greenhouse. The soil mixture that suits them best consists of turfy loam with which a little peat, leaf-soil and sand are mixed. Plenty of water is needed in summer, and the soil must be kept moist in winter. Palms thrive best in comparatively small pots. March and April are the best months for repotting. Among favourite Palms are: *Kentia fosteriana*, *Kentia belmoreana*, *Geonoma gracilis*, *Cocos weddelliana*, *Latania borbonica*, and *Phoenix Roebelinii*. All these are most useful for decorative purposes. *Chamærops excelsa* is hardy in southern gardens.

PANCRATIUM.—The fragrant white-flowered *Pancratium* has fallen from its high estate as a favourite hothouse plant, possibly because its flowers are fleeting. And for this reason I can scarcely recommend it with confidence. It has large, handsome, evergreen leaves, and the flowers are produced in a large, loose bunch. The soil that suits it best is composed of half turfy soil and half leaf soil and dried cow manure, the latter rubbed through a sieve. Sand is intermixed. It enjoys the warm, moist atmosphere of the hothouse, and is best in the shade. *Fragrans* is the sort that is chiefly grown.

PANICUM.—One of the most generally useful little plants that can be grown in the hothouse. It has prettily variegated green and white leaves, and is of trailing habit of growth. The *Panicum* is invaluable for decoration, and is invariably used to form an edging to groups of plants. As a margin for the staging in the hothouse, or even in a cool greenhouse, it is most suitable; the long growths fall over the edge and hide the ugliness beneath. *Panicum variegatum* is the best. It is most easily increased from cuttings put in at any time of the year, but during winter. If little pieces about 3 or 4 inches long are cut off and put in pots filled with sandy soil in a closed case in the hothouse they quickly form roots. Three or four cuttings inserted in a 3-inch pot may be allowed to grow undisturbed.

PLUMBAGO.—Everyone, I suppose, knows the beautiful blue-flowered *Plumbago* that needs only the temperature of an ordinary greenhouse, but the charming one called *rosea*, that can only be well grown in the hothouse, is not so familiar. It is, however, to be recommended as a plant amateurs may grow. It is easily grown from cuttings taken in spring, and thrives in turfy soil with which sand is freely mixed. It will be found best to grow fresh plants each year, for cuttings are freely produced if in early spring the old plants are cut back. To induce them to develop into sturdy branched plants, the shoots are cut at the points nipped two or three times. After flowering the plants are kept fairly dry at the root.

POINSETTIA.—As a brightly coloured plant for decorative purposes during the autumn months the *Poinsettia* is scarcely surpassed. Its 3 or 4 feet high stems, clothed with pretty light green leaves, are topped by bright red bracts or, to all intents and purposes, richly coloured leaves. The first year the plants have only one stem, but they may be grown on another year with several stems, and are then more handsome than ever. They go to rest in winter after their beauty is passed, and then the soil is kept dry, only an occasional watering being given. If in March the stems are cut down and the plants placed in a closed case in the hothouse, young growths soon make their appearance, and these, when 3 or 4 inches long, are taken off as cuttings and inserted in small pots of sandy soil and placed in the propagating case. *Poinsettia* belongs to the Spurge family, and has the milky juice common to the *Euphorbia*, a juice, by the way, that is more or less poisonous and which should not be allowed to get into a child's mouth if cut on the hand. Owing to the loss of the milky juice when the stems are cut, it is usual to dip the cuttings in sand or charcoal to dry the juice. They take root most easily when there is heat beneath the propagating case. During the spring and summer months the plants remain in the hothouse and must, of course, be potted on as they need it. When warm weather comes the plants are gradually hardened off and, for the hot weather, are placed in a frame. This, however, ought to be provided with hot-water pipes so that it may be warmed in dull, wet weather, otherwise the plants will lose their lower leaves.

plants that can green and white is invaluable edging to groups, or even the leaves fall over the stem is the best. Any time except long are taken in the hothouse and planted in a 3-inch

ful blue-flowered many greenhouse, well grown in the recommended as cuttings taken is freely mixed. for cuttings are cut back. To the shoots have flowering the old

decorative use surpassed. The leaves, are topped with richly coloured, but they may then more hand-beauty is passed, ring being given. placed in a closed their appearance, and inserted in a glass case. The milky juice that that is more or get into a chance when the stems are placed in charcoal to dry up in heat beneath for several months the potted on as they gradually hardened. This, however, may be warmed their lower leaves,

and then their beauty is somewhat marred. *Poinsettia pulcherrima* is the common kind, but there is a white variety which, however, has not the same value.

SAINTPAULIA.—A pretty little plant with charming blue, yellow-centred flowers that blooms for weeks together towards the end of the summer. It makes a very pretty little plant for pots, and is most useful for home decoration. The way to increase it is by leaf cuttings; the leaves are inserted in sand or sandy soil in a closed case in the hothouse, putting them in the soil about half-way down. A stock may be raised by dividing the plants, and seed may also be sown.

SCUTELLARIA NOCCINIANA is a hothouse plant with brilliant orange red blooms produced in bunches like those of *Jacobinia*, at the top of the stem. Cuttings are rooted in spring, and if the plants are grown in ordinary turfy soil with sand and peat intermixed they are difficult. They bloom in summer.

STROMILANTHES DYERIANUS.—This is a plant that the veriest tyro can grow; it strikes root like a weed if shoots some 3 or 4 inches long are put in small pots of sandy soil in the propagating frame in the hothouse. Its claim to attention is in the brightly coloured leaves.

SOLANUM.—There are many fine plants valuable for their blossom that belong to the Potato family, and among them all there is possibly none to excel two *Solanums* that need the warmth and moisture of the hothouse—*Wendlandi* and *seaforthianum*, the former with large handsome violet-blue blossoms, the latter with smaller flowers of lighter colouring. Both are strong climbers that suit admirably for covering the pillars and training on the rafters. They thrive best when planted out in a well drained bed of turfy soil.

STEPHANOTIS FLORIBUNDA.—One of the most attractive of hothouse climbing plants, with deep green leaves and bunches of white, fragrant flowers. This, like the *Gardenia*, is very subject to the attacks of that bane of plant growers, mealy bug, but by occasionally syringing the leaves with paraffin and water (a wineglassful of paraffin to two gallons of water, keeping the mixture well stirred or the paraffin will remain on top) and searching for the insects with a brush dipped in methylated spirits they may be kept down. The *Stephanotis* should be planted out in a small, well drained bed of turfy soil with some peat and sand added, or it may be grown in a box or large 12-inch flower pot. The plants are commonly trained to wires beneath the roof-glass, about 12 inches away from it. Flowers are produced for weeks together throughout the summer months. The only pruning needed is to cut out some of the weak shoots in spring. During the winter months much less water at the root is necessary than during the summer.

TORENIA.—This is a pretty hothouse plant that is easily raised from seed sown in March. They look charming when grown in hanging baskets. The most popular sort is *Fournieri*, with violet-blue blossoms.

CHAPTER XXXV

FRESH VEGETABLES ALL THE YEAR ROUND

It is not possible to lay down a system of cropping that will apply to all gardens. In a large garden it would be comparatively easy to formulate a correct scheme of cropping and to adhere to it for a series of years. But when dealing with a small garden, where a large number of kinds and varieties of vegetables have to be grown, such a plan would be found extremely difficult, if not impossible. It will, however, be found of great advantage to follow as closely as possible the principles underlying such a scheme. Vegetables differ widely as to the food constituents they extract from the soil. One of the principal sources of the food of plants is found in inorganic or mineral substances. If plants which extract the same mineral constituents from the soil are planted in close succession for a series of years, then the soil becomes bankrupt in that constituent. Another important point to remember is the fact that to obtain heavy returns of some vegetables it is necessary to trench the land deeply and manure heavily before planting takes place, while with others better results are obtained by planting on land not manured for twelve months. Among vegetables that succeed best when planted on land recently manured, the following may be mentioned:—Peas, Runner, Dwarf and Broad Beans, Potatoes, Celery, Cauliflower, Cabbage, Leek and Lettuce. Of the vegetables that succeed better when grown on land which has not been manured for a year the following may be mentioned:—Carrots, Parsnips, Beetroot, Chicory, Salsify and green crops intended to withstand a cold winter, such as Broccoli, late Brussels Sprouts, Curly Greens and Spinach. Plants grown under these conditions take longer to mature and are hardier than plants grown in rich soil. It is a good plan to divide the vegetable quarters of the garden into three parts, cropping No. 1, say, with the following, if the ground has been prepared the previous winter by trenching and manuring:—Early, midsummer and late Peas, Broad Beans

Runner Beans, and Dwarf Beans and Potatoes. The second year No. 1 quarter could be planted to advantage with the root crops mentioned if prepared by digging only and without adding manure. The third year the same quarter might advantageously be planted with the following after the ground had been dug and lightly manured:—Turnips, Onions, Lettuce, late Cauliflower, Cabbage, Spinach. In the fourth year it will be time to trench No. 1 plot again, then the same rotation of cropping may be followed. Or it may be slightly varied as the grower may think proper, bearing in mind, however, that root crops should not be planted in recently trenched and manured ground, or the roots will become forked and coarse.

ARTICHOKE, THE GLOBE.—A choice vegetable grown in most gardens, although in England it is appreciated less than on the Continent, and especially in France, where it is partaken of freely by rich and poor alike. There is no difficulty in growing this plant to perfection providing the soil is well drained, deeply cultivated and liberally manured. Propagation may be effected by seeds, but the better way is by offsets taken from the old plant in late March or early April; the small side shoots are then found around the centre of the plant. The grower must be careful to secure with each offset as many attached roots as possible. It is an excellent plan to pot up the offsets and place in a moderately warm frame; there they will quickly fill the pots with roots, and are planted out about the middle of April. Treated thus, they will certainly come into use a fortnight or three weeks earlier than if planted out direct. The common way in English gardens is to grow this plant in permanent rows in the same way as Rhubarb, on well dug and manured land, the plants being 4 feet apart each way. They are rather tender, and in severe weather are apt to be killed, especially when growing in heavy, cold soil. The best protection I have found to be coal ashes placed over the roots and partly up the stems. In exceptionally hard weather the tops should also be covered with dry litter or Bracken. When grown for market the Globe Artichoke is generally raised from seed and treated as a biennial. The disadvantage lies in the fact that one cannot depend on the varieties coming true. However, seedlings grow more strongly than offsets, and possibly give a better cash return. Seedlings are planted in rows 4 feet apart, the plants being 3 feet apart in the rows. They are thrown away after the crop is over at the end of the second year. Seed may be sown where the plants are to be grown in early March, or at the same time in a warm greenhouse, the seedlings being potted on and planted out in April. In dry weather the plants should receive copious waterings with manure water to encourage free growth and flowering. The flower heads are cut before fully grown, while they are tender. Small ones generally form on the side of the flower stems;

these should be taken out when small. The Globe Artichoke is considered a delicacy when eaten raw. There are two varieties, the Globe and the Brown Globe; both are good. The flower stalks should be cut down as soon as the flower heads are gathered.

ARTICHOKE, JERUSALEM.—A hardy, tuberous-rooted herbaceous perennial. The roots are something like Potatoes, and are in the ground chiefly through the winter months. They are much in favour of cooks for soup making. For this purpose alone they are invaluable. They are also liked by many when cooked. The method of cultivation is to trench and manure a piece of land in any out of the way corner. The stems grow to a height of 8 feet or more, and provide an effective summer screen. They need not be replanted for four or five years, and will give a good return every year if some of the roots are left in the ground. They are ready to take up at the end of October, and remain in season until the following March, or longer if the roots are stored. They are planted in the same way as Potatoes, in rows 2 feet apart, the tubers being 1 foot apart in the row and 6 inches deep. There is a purple and a white variety; the latter is much better.

ASPARAGUS.—The Asparagus is found growing wild on sand banks by the sea. It is useful to bear this fact in mind in selecting land for its cultivation. Above all things Asparagus needs well drained land. Deep sandy loam lying on gravel, or some other equally porous foundation, suits it best. Those possessing such land would do well to make a speciality of Asparagus, especially if the land is near the sea. Seaweed is an excellent manure for it. But even cold, clayey soil, which of all soils the Asparagus dislikes the most, may be made to yield good crops if it is dug out 2½ feet and a drain pipe laid in the bottom, having a slight fall and an outlet. Over the bottom of the bed, deep enough to cover the pipe, should be laid a layer of brick rubble and clinkers. Cart away half the soil dug out and mix with the remainder half its bulk of rotten manure and an equal quantity of road scrapings, old mortar rubble, coarse sand and leaf soil; mix also some lime and a sprinkling of crushed bones. Fill the trench with these materials, well mixed together, and tread firmly. The most convenient width for a bed is 5 feet. This will hold three rows of plants, the outer rows being each 15 inches from the side. There should be a path or alley 18 inches wide on each side of the bed. The trench should be prepared in the same way as the bed, for the roots of Asparagus will find their way there. Satisfied that the drainage is efficient, we proceed to take a trench out at one end of the land 2½ feet deep and 18 inches wide. The bottom is thoroughly forked over and two barrow-loads of manure are added to every trench. A gallon of lime and a quart of crushed bones may also be used. A well made Asparagus bed will last a lifetime, so that a little extra initial expense must not be considered. Treat the land in this way the length of time desired; this should be done during the winter. In the warm

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FLOWERS IN THE KITCHEN GARDEN. A BORDER OF FORGET-ME-NOTS.



counties the end of March is the best time to plant; in cold, northern districts early April. In making ready for planting four strong wooden piles are inserted at each corner of the bed, thus defining it. The surface soil is then forked over and made level. With the help of a garden line, make a furrow along the centre of the bed and one on either side. The roots are planted 15 inches apart, not on the level, but on a small heap of soil, since they are of convex form. The roots are pressed into the soil, planting the centre line first. They should not be exposed longer than necessary. Fifteen inches from the outer rows lines are drawn to define the edges of the alley. Cover the roots and the whole surface of the bed with 4 inches of soil taken from the alley and make it firm. It is the custom with some gardeners to plant such crops as Lettuce, Spinach or Turnips between the rows of Asparagus, but this is not to be commended. One-year-old plants are to be preferred.

For the first two years there is little to do beyond keeping the beds clear of weeds by hand weeding. If the hoe is used, there is danger of cutting off the young growths. In dry weather the bed will be much benefited by copious watering.

Raising Plants from Seed.—Sow the seeds the last week in March thinly, in furrows 3 inches deep and 15 inches apart. The seeds in the row should be 4 inches apart. Choose a warm, open position and rather light soil. Keep the ground free from weeds throughout the summer by hoeing, and give a top dressing of manure as soon as the "grass" is cut early in November.

Winter Treatment.—In cutting the "grass" when dead, early in November, care should be taken not to pull at the roots, as there is a danger of injuring the crown of the plant. A few of the roots may die, and if the spot is not marked in summer, in spring it is not easy to find out where the dead root is and replace it. Therefore always put in a stake in vacant spots. As soon as the "grass" is cleared, cover the beds 2 inches deep with rotted manure. The following March fork in the manure. A few of the "grasses" may be cut in the second year if the owner is anxious to do so, but it is better not to do so until the third year. Then the bed will be practically in full bearing, and if properly looked after will yield for many years. The writer knows of a bed that has been in bearing for a hundred years. If white Asparagus is preferred, in spring the bed is covered 6 inches deep with light soil, previously giving a light dressing of salt, and taking 3 inches depth of soil from the alleys and placing on the bed. The alleys are filled up with manure, since the soil there will be full of roots. If green Asparagus is desired (and it is, we think, the best flavoured), the top dressing of light soil need not be applied. In November, again, the bed receives a further dressing of rotted manure 4 inches deep. The crop is also greatly benefited by a dressing of nitrate of soda applied at the end of April, and in the middle of May of Peruvian guano. Give a good watering in late summer, using diluted

manure water from the farmyard if possible. By careless much damage may be done to the buds beneath the soil. The way is to use a proper Asparagus knife (it may be had from a merchant). Draw the "grass" gently towards you and pull the knife through its base. The small "grass" that comes up when 6 inches high. All "grass" that comes up should be cut by June 16th, but none afterwards. The plants must be given time to grow, develop, and properly ripen a good crop of "grass" by the end of the summer, or it is hopeless to look for a good crop the following year. Much damage is frequently caused to Asparagus by spring frosts. The best way to protect the plants is to draw a layer of soil over each growth above ground. This will protect them during the night, and by the afternoon of the next day they are usually far advanced to be cut.

Giant Asparagus.—The secret lies in giving the roots plenty of room, planting in rich soil, and giving abundant surface dressing of manure afterwards. They are planted in rows 4 feet apart and between each plant in the row. The roots grow to an enormous size, one being large enough to fill a wheelbarrow. The foliage is cut during summer to prevent damage by wind.

Forcing Asparagus.—This plant lends itself readily to forcing. It is possible by forcing and growing outdoors to have it in use uninterruptedly from the beginning of November until the end of June. The simplest way to force it is to dig up three- or four-year-old roots, wash them in single layers, close together, in soil on the stage of a hotbed. Cover the roots with 2 inches of soil. Room may be found for forcing it under the stage of a hothouse, in a mushroom house, or in a cellar placed on a hotbed, covering the frame over at night in cold weather. The temperature of the hothouse should be about 65° Fahrenheit during the day, and 55° at night. In the depth of winter, especially before Christmas, it takes from three weeks to a month before "grass" can be cut, but as the days lengthen less time is needed. To have a constant supply of Asparagus it is necessary to introduce roots from the heat every ten days. Roots intended to be forced may be planted in ordinary, well cultivated garden soil in rows 18 inches apart, the roots being 10 inches apart in the row. The roots are of no use after they have been forced. The old-fashioned way of forcing Asparagus roots in the permanent bed is still practised by some. It is a poor plan for a spring supply, but not well adapted for forcing in winter. A rough wooden frame is placed about 7 inches above the bed and covered with manure. Beds thus forced in alternate years give excellent results for many years, but they must not be forced every year. The top part of the wooden framework should be made in sections so as to be easy of removal for cutting the "grass." The best variety for general cultivation is the Argenteuil, named after the town near to which so much Asparagus is grown. Conner's Colossal is the best to grow for giant specimens.

BEAN, BROAD.—This is the only hardy Bean, and for that reason its value is greatly increased. It will grow in almost any kind of soil, and is not particular as to position so long as drainage is effective. However, to grow it well and to have the best return the land should be deeply dug and manured. The seed is planted 3 inches deep, 4 inches apart, early in November, in rows 18 inches wide in a sheltered and sunny position. The Mazagan variety is best for this early crop. As soon as the Beans are above ground a ridge of soil should be drawn up on either side of the row and close to the plants to protect them from cold. In very severe weather some straw litter is placed over them. The only advantage of winter planting is that the crop comes in early. The yield is not so heavy as that from seeds sown the first week in February. At this season a few rows may be planted. The main sowing should be made the first week in March. This time, instead of sowing in single rows, let broad drills be drawn 6 inches wide and 4 inches deep, and two rows of Beans be planted, arranging the seeds 4 inches apart each way. As soon as the Beans are "set," cut off the tops of the plants to within 4 inches of the top of the flowers. This will help the development of the Beans. Broad Beans do not thrive well in late summer, but those wishing for a late supply may make another sowing early in April. An economical way of growing this Bean in cottage gardens where space is limited is to plant between the rows of late Potatoes. In addition to the Mazagan for early sowing, good sorts are Improve, Green Windsor and Sutton's Exhibition Long Pod.

BEAN, DWARF FRENCH.—This delights in deep, rich, rather light soil. As it is not safe to plant out of doors until the first week in May, there is plenty of time to get the land well prepared. A succession of French Beans may be obtained throughout summer and autumn by successive sowings until the end of June. The seeds are planted in drills 3 inches deep and 2 feet apart; the seeds are put about an inch apart, as some may not germinate, and the plants thinned out afterwards to 3 inches apart. It is a good plan to earth up the rows slightly as soon as the plants show through. In hot, dry weather the surface of the soil between the rows is mulched with rotted manure, and an occasional watering is given with manure water. The Beans should be gathered frequently and while young, to prevent seeds forming. If it is desired to save seed, place a tall stake against the plants selected as seed-bearers, and let them ripen all they produce. For an early crop Ne Plus Ultra is still undoubtedly the best, and Canadian Wonder is unsurpassed as a main crop variety. White Haricot is recommended to those who prefer white Beans.

BEAN, CLIMBING FRENCH.—The foregoing remarks with reference to cultivation apply in every particular, but the climbing Beans require staking like Peas, growing as they do from 3 to 5 feet high. The rows should be 4½ feet apart. Tender and True is one of the best

varieties. The following are also excellent —St. Fiacre, Str. Dickson's Hero and The Admiral.

Forcing the French Bean.—Few vegetables are more productive in winter and spring, when the choice is limited, than the French Bean. By sowing successive lots of seed in boxes or pots from the middle of August until the end of March an unbroken supply can be had through the winter and spring; in fact, all the year round, with the help of the outdoor crop. The plants, from seed sown in August and those sown in spring, may be grown in a heated frame. In the latter part of winter, however, it is useless attempting to grow French Beans unless a temperature of from 65° to 75° can be maintained. Six-inch wide pots are used, seven beans being sown in each; the soil is put 2 inches deep. Light, turfy soil, with which a little leaf soil and rotted manure are mixed, forms a suitable compost. A few crocks are placed in the bottom of the flower pots for drainage. They may be grown on shelves near the glass in a hothouse. The plants may be syringed freely on fine days, and the atmosphere of the house kept moist. The greatest difficulty with these plants in winter is to get the fruits to form. Take advantage of every bright hour in the day to give a little air. The plants in due time are supported with thin twiggy sticks, and should be watered with care, weak manure being given when the pods are forming freely. The following are excellent varieties for this purpose: Sutton's Forcing, Ne Plus Ultra, and Sion House and Osborne's Forcing.

BEAN, RUNNER.—The best way to grow Runner Beans is, in the open ground, to dig trenches as for Celery: make them a foot deep and 1 foot wide, fill with soil and rotted manure in equal parts, treading firmly. The rows should be 9 feet apart. The seeds cannot be safely sown in the open ground until the first week in May. It is best to sow in two rows 5 inches apart, each other, the seeds being 5 inches apart and 4 inches deep. Cover with an inch of fresh soil, thus leaving a hollow 3 inches deep which will serve to retain water. As soon as the young plants are above ground a ridge of soil should be formed on either side of the row to protect them from cold winds, and the plants should be staked. The plants ought to be strong, and from 8 to 9 feet high. Give water in dry weather, using manure water when pods are forming freely. The ground must be frequently hoed. Good crops may be secured by planting in well cultivated and manured soil in the ordinary way. If suitable sticks are not to be obtained, the Beans may be grown as dwarf plants. Dwarfness is secured by pinching off the "runner" shoots. When grown in this way the rows should be 3 feet apart, and the Beans will soon cover the ground. This plan gives a return at less cost, but the crop is neither so heavy nor so long continued as when the plants are staked. Amongst the best varieties are Ne Plus Ultra, Champion Scarlet, Best of All, and the Sugar

BEETROOT.—This is used in various ways. Many of the leafed varieties prove useful as decorative plants for colour

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HARDY FLOWERS IN THE KITCHEN GARDEN.

the flower garden. But the most important varieties from the gardener's point of view are those grown for salad and culinary purposes. The chief point to aim at is to obtain what I may call refined roots of moderate size of a dark-red colour.

Coarse, colourless roots are worse than useless. Thus Beetroots must not be grown in recently manured ground. All the same, they require generous cultivation, or they will be "stringy" and hard. Grow them on land that had been manured for a crop the previous season. Let such land be dug 2 feet deep in autumn and left rough all the winter. The position should be open and sunny. Late April or early May is the best time to sow the main crop. If sown earlier there is a danger of the plants "bolting" to seed, or of their being frost-bitten. Drills are drawn 15 inches apart and 1½ inches deep, and the seeds sown thinly. When the young plants are through and large enough to handle, thin them out, leaving them 9 inches apart in the row. The Beetroot does not transplant well, but gaps may be filled by transplanting the seedlings on a dull, showery day. Careful hoeing to keep weeds down and to ensure free and healthy growth will be all that is necessary to do until the middle of October, when the roots are lifted. This needs to be done with care; if bruised, the roots are spoilt. The fork is driven in well below the root. The tops are not cut, but twisted off with the hands, leaving 2 or 3 inches attached to the root. They are left on the ground for a few days to dry, covering up at night with their own foliage in case of frost. The best place to store them is a cool, dry shed or cellar. They are packed one on top of the other in dry sand, the tops just peeping out of the sand. In this way they will keep in good condition until Beetroot comes in again. The Turnip-rooted Beetroot is useful for shallow, stony soil, where the long roots cannot well be grown. It is ready for use a fortnight earlier. Then there is the Silver Beetroot, grown for the mid-rib of the leaf, a delicacy which is much appreciated by many; the other part of the leaf is a good substitute for Spinach. Good varieties are Sutton's Blood Red, Veitch's, Dell's Dark Red, and Cheltenham Green Top.

BORECOLE or KALE.—This is an extremely hardy vegetable; often after a severe winter it proves to be the only green vegetable alive. It is easily grown, but the best results are obtained when the ground is deeply dug. No rank manure should be applied at the time of planting. Borecole is grown for spring and early summer use alone, therefore it must be grown as sturdily and hardily as possible. The ground chosen should be in an open and exposed position. In June vacant land is often scarce; then the Borecole may be planted among the Potatoes in every other row. This is, of course, a makeshift way of growing it, and should not be practised, except as a last resource. Seed is sown in March and April, slightly covering them with soil, the drills being a foot apart. As soon as the plants are large enough to handle, transplant as many as are wanted to an open piece

of land 6 inches apart. They will then have room to grow strong and strongly. They should be planted in their permanent quarters from the middle to the end of June in rows from $2\frac{1}{2}$ to $3\frac{1}{2}$ feet apart, the wider space being given to the stronger-growing sorts; the weaker sorts should be from 2 to $2\frac{1}{2}$ feet apart in the rows. It is a good plan to sow again three weeks later; these plants may be planted close together, they often withstand hard frost better than the earlier sorts. There are endless names given to varieties of Borecole, but they all emanate from a few well-known types. The Curled or Scotch Kale is chiefly grown. The Cottager's Asparagus, Tall Curled, Thousand Headed, and Rugged Jack are other varieties. These give two crops of greens in early and late summer, and that of autumn and winter growth, followed by that of spring. As young Cabbage becomes plentiful Borecole is no longer required, and should be pulled up.

BROCCOLI.—To grow this vegetable to perfection a deep cultivated soil is necessary. The Broccoli is very much like the Cauliflower, the chief difference is found in its greater hardiness. In autumn it succeeds Cauliflower, and is afterwards in season through the winter and until late May or early June. Then early Cauliflower are in season again, so that the two together may be made to produce throughout the year with their valuable produce. The autumn varieties should be sown early in May in drills, and afterwards transplanted 6 inches apart on an exposed border. The young plants then have plenty of room to grow, and are well exposed to light and air, consequently they are sturdy and hardy. On the contrary, plants left crowded in the seed-bed soon become spoilt. Broccoli for autumn may be pulled up as soon as the plants are large enough, say towards the end of June, in any fairly rich soil available at the time, in which no other of the Cabbage tribe has been grown. The treatment is rather different as regards the later varieties. These have to withstand severe weather, and should be grown as hardily as possible from the beginning. Seed is sown a fortnight earlier than that of the autumn Broccoli. Give them a longer season of growth, and an open sunny position should be selected. They should follow a crop for which the land was previously cultivated and manured the year before, such as Peas, Potatoes, Carrots, or Strawberries. The ground is not dug, the surface is simply cleared, and holes made for the plants with a crowbar. Broccoli are planted 2 feet apart in rows 2 feet from each other. Some of the smaller sorts, such as Veitch's Model and Sutton's Snow White, may be planted 18 inches apart.

Unfortunately, Broccoli is not quite hardy, and means of protection during hard frosts must be provided; laying the plants down is an old and useful plan. Beginning at the outside row of the plot, a spadeful of soil is taken from between the plants and pressed to the stem of the first plant, the soil on the other side of the plant is loosened with a fork, and the Broccoli is pressed down un-

"head" touches the ground. All the plants are treated similarly. The soil taken from one plant is placed on the stem of the neighbouring one that has been laid down, and is made firm by treading. Much damage is often done by the sun shining on frozen plants; turning the Broccoli "heads" to the north effectually prevents this. The middle or end of November is a good time to "lay" Broccoli. It is necessary also to cover them with some protective material. There is nothing better to use than bracken; straw litter or mats will also answer the purpose.

The following are all good sorts:—Veitch's Self Protecting Autumn, Sutton's Michaelmas White, and Walcheren. These are autumn varieties. For winter and early spring, Sutton's Mammoth and Snow's Winter White are recommended. For later use until the end of May, Sutton's Late Queen and Veitch's Model are excellent.

BRUSSELS SPROUTS.—These are amongst the most important of winter vegetables. The culture is of the simplest, and more or less understood by all possessing a vegetable garden. No vegetable better repays good treatment, so select an open position and have the land trenched 2 feet deep and heavily manured with rotted farmyard manure in winter or early spring. It is a practice with some gardeners to sow a few seeds in autumn when Spring Cabbage is sown and to plant out at the same time. I do not think there is any advantage in this, as Brussels Sprouts are not usually appreciated until late autumn. Sow the first seeds about the middle of February, broadcast in a cold frame in a sunny position. For the main crop prepare the soil on a warm sheltered border by forking well, sow in late March in drills a foot apart, covering the seeds $\frac{1}{2}$ inch deep. Transplant the seedlings farther apart as soon as large enough to handle. Plant out permanently late in May, the early crop being put out a fortnight sooner. It is far better to use a trowel than a "dibber." By planting strong plants thus early in the season in good soil they will have time to grow to a large size and be well furnished with sprouts by the autumn. The rows for the main crop should be 3 feet apart, and the plants in the rows 2 feet apart. The earlier crop may be planted a little closer. Brussels Sprouts may suffer from severe frost, and as the crop is such a valuable one it is best to protect them with bracken or straw litter, placing this on the ground against the lower part of the stem. In gathering the sprouts the stem should be cleared first and the top last. Only the best strain should be grown, those with compact hard sprouts. I have said nothing about earthing up the plants as soon as they have made a good start or about hoeing frequently, but these items will appeal to all who have the care of crops. Imported, Sutton's Matchless, Scrymgeour's Giant, and Aigburth are among the best varieties.

CABBAGE.—There is probably no garden crop that exhausts the soil more than the Cabbage. The Spring Cabbage (from seed sown on August 15th), which is the chief, occupies the land from one September

to another, and yields an enormous weight of crop in the course of spring and summer. Therefore, if a good return is to be had, the land must be deeply trenched and liberally manured. A good plan is for the Cabbage to follow Onions. The best varieties to plant for early crops in April and May, when young Cabbage is so much appreciated, are Sutton's April and Flower of Spring and Ellam's Early. For a general summer crop, Enfield Market is still one of the best. Red Cabbages for pickling are sown at the same time and grown in a similar way. Sowing Cabbages at the wrong time is a frequent cause of their bolting to seed. If any of the above mentioned varieties were sown in spring the chances are that many of the plants would "bolt," but if Tender and True or All Heart were sown then, scarcely any would run to seed. The advantage of sowing in spring is that a succession of young Cabbage is obtained, and they are of better flavour than the old ones that have been on the ground so long. A good time to sow is the end of March.

The Colewort, or Maiden Cabbage, is a most useful crop. Seeds are sown early in June, and the plants are put out on land cleared of early Potatoes or some other crop towards the middle or end of July. This small Cabbage should be planted in rows 1 foot apart, allowing 12 inches between plant and plant in the row. When growth is completed towards the end of October, the flat brown heads of the Cabbage will almost be touching one another, and are far from unattractive. The Colewort is in use from November to the end of January. The London and Rossetti are still amongst the best.

The Savoy.—This Cabbage is chiefly valued for its hardiness and its excellence as a late winter and spring vegetable. Seed is sown at the end of March, the plants being put out at the end of June, the large form (The Drumhead) in rows 2 feet apart each way, and the smaller varieties 18 inches apart. The plants are earthed up (as all Cabbages should be) as soon as they have made a fair growth of leaves and stem. No crop derives greater benefit from frequent hoeing than this Cabbage. The best varieties are: Drumhead, Dwarf Green, Curled, Late Green and Tom Thumb.

CAPSICUM and CHILLI.—Both of these when well grown are useful and ornamental for the decoration of the conservatory in winter or for use in the kitchen, either in a green state for pickles or for making Chilli vinegar, or, when ripe, for grinding into cayenne pepper. The Chilli is best for the latter purpose. The seed is sown in warmth early in March, and as soon as the plants are large enough to handle they are put into shallow boxes in fine, sandy soil, 3 inches apart, and kept on a shelf near the greenhouse roof. In about three weeks they are potted singly in 4-inch pots. About the middle or end of May they will be ready for their last potting, the Chillis into 5-inch and the Capsicums into 6-inch pots. They may be successfully grown and ripened in a cold pit or frame. In a warm summer they do fairly well when planted out in a sunny border. The following are good

varieties :—**Capicum** : Erect Fruiting, Mammoth, Long Red, Golden Dawn, and Long Yellow. **Chilli** : Long Red, Long Yellow, Small Red Cayenne, Round Red and Round Yellow.

CARDOON.—This vegetable (of which the midrib of the leaf is eaten) is only grown to a limited extent in this country, and generally at the bidding of French cooks. The seeds are sown late in April, two or three seeds in a 4-inch pot placed in a cold frame. As soon as the best seedlings can be distinguished, pull up the weaker ones, leaving only one plant in each pot. Dig a trench a foot deep and 2 feet wide and fill with rich soil. Plant the young Cardoons early in June in rows 6 feet apart, the plants being 2½ feet apart in the row. Summer treatment consists in hoeing frequently, keeping down weeds and watering copiously. Late in September the plants will be ready for earthing up, but first arrange the leaves in an upright position, and closely bind with hay-bands to within a foot of their tops. A dry day must be selected for earthing up, which is done by covering with soil to the top of the hay-bands; as the earthing up proceeds make the soil hard with the back of a spade. The plants will be fit for table early in November. They must be protected from rain and frosts in winter by mats, straw or some other material. It is the practice with some to take the plants up with a good "ball" of earth and store in a cold dry outhouse, from which frost is excluded, the hay-bands not being disturbed until the plants are wanted for table. The Spanish variety is the best.

CARROT.—The Carrot thrives best in deep, rather sandy soil, and is preferably grown on land that has been well manured for a crop the previous year. No further manure is added, but the ground is well dug in winter. Where the soil is naturally shallow, the best plan is to sow only the short varieties, such as Champion and Scarlet Horn. The best for general crop are the red and scarlet Intermediate and the Long Surrey Red. Seeds of these should be sown towards the end of March in drills, for the large varieties, 12 inches apart, and rather less for the smaller Horn varieties. As soon as the young plants are through the ground have the soil hoed to kill weeds, as they will grow much faster than the Carrots. Thin the young plants to 3 inches apart in the first place, and subsequently until they are 6 or 8 inches apart. Carrot seeds should be mixed with a small quantity of dry sand and rubbed through the hands before being sown, or they will stick together and be sown unevenly. Young, tender Carrots are appreciated most. These can be had for many months in the year by successional sowing. The first seed of the early Scarlet Horn or Sutton's Early Gem is sown in late December on a bed of soil 5 inches deep made up in a frame containing a hotbed. With the Carrots Radishes may be sown (Wood's Frame is a good variety). They will be ready long before the Carrots. The Carrots will be ready for use in April, followed by a crop sown out of doors in February on a warm, sheltered border. By sowing at intervals of five weeks a continuous

supply of young Carrots may be had through the summer and autumn and even in winter by sowing seeds in the middle of August. The crop Carrots are ready for lifting at the end of October and should be stored in damp sand or soil in a cool shed or outhouse, cutting the leaves. Those sown in August will be fresher and of better flavour if left in the ground until the end of January, covering them with strawy manure during the hard weather, so that they can be lifted when wanted.

CAULIFLOWER.—There is some confusion in the public mind as to the difference between Cauliflower and Broccoli. The difference is more apparent in quality and flavour, the Cauliflower being better in these respects. The Cauliflower is a tender plant and can only be grown out of doors in summer and autumn, whereas Broccoli is comparatively hardy and produces its flower heads through the winter and spring. It is of less delicate and pleasant flavour. To grow the Cauliflower to perfection the land cannot be too richly cultivated. For the first early crop seeds are sown on a warm border out of doors about August 14th. Sow in drills a foot apart and $\frac{1}{2}$ inch deep. The young plants are wintered in a cold frame. Let the plants be planted in the frame in light friable soil early in October, putting them 4 inches apart. Let them be grown as hardily as possible during the winter, giving air freely when it is not too cold. In very severe weather the frame must remain closed and be covered up at night during hard frosts. Towards the middle of April prepare, in a well sheltered position, a piece of land that has been previously heavily manured and deeply dug. Fork it over well. Handlights or cloches should be placed over the plants after they are planted. Put the plants in groups of four, so that one handlight will cover each group. A little air must be given in the daytime. When danger from frost is past the handlights are taken off. The heads will be small on the early plants, but they will be early and of good quality. From the same batch of plants (sown in August) plant also a row at the foot of the south wall; these will be ready for use as soon as the earlier crop is over. Plant yet another lot of the autumn sown plants in a sheltered position in the open quarters and they will continue to supply into June. Early Cauliflowers may also be obtained by sowing seeds in a warm greenhouse early in February, putting the seeds in a bed of soil made up in a warm frame, and subsequently, in April, planting out as directed above. If wanted still earlier the plants should be potted into 5-inch pots and grown in frames until fit for use. The next sowing should be made early in March for successional crops and this should include larger varieties, such as Veitch's Perfection and Dickson's Eclipse. These will give magnificent heads in late summer and autumn. Another small sowing of the early sorts may be made early in April and early in May. It is of no use sowing after May. Generally speaking, the proper distance apart to plant Cauliflowers is 2 feet apart each way, but the small early varieties may be planted

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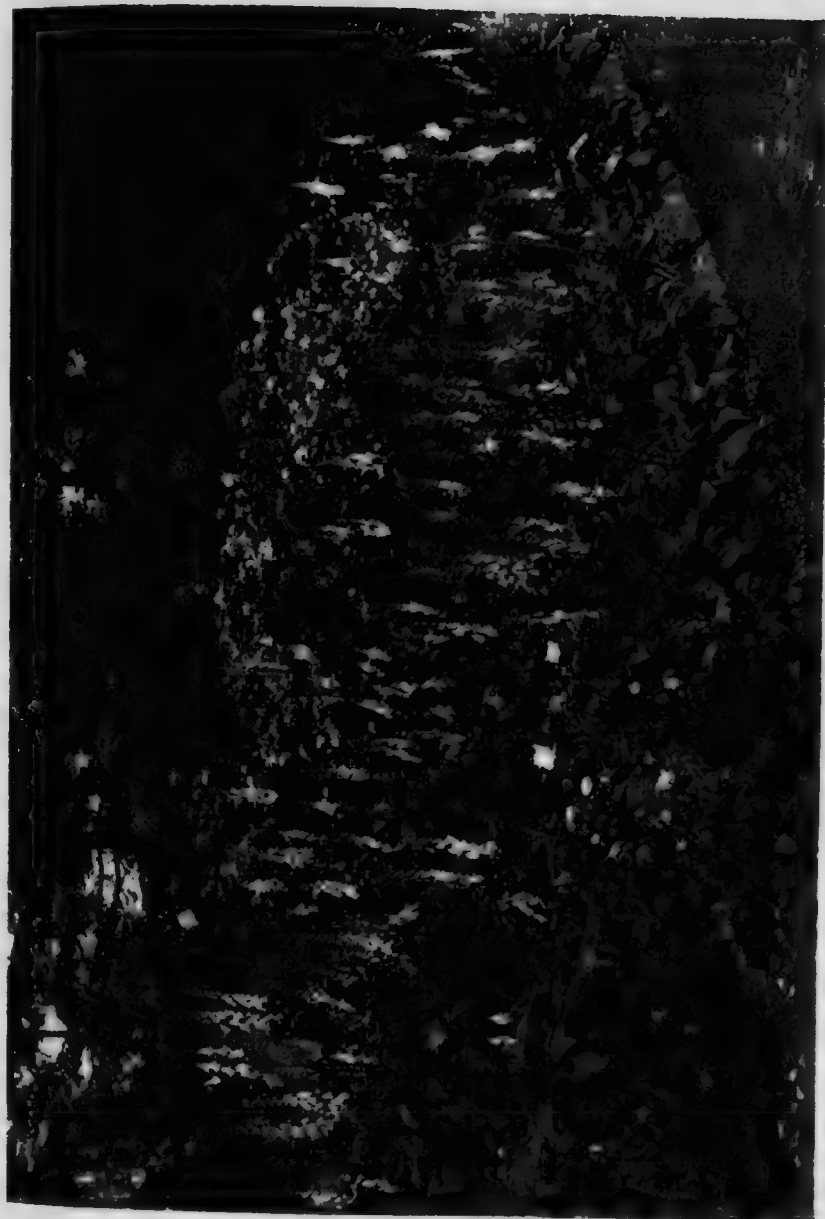
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SELF-SOWN FOXGLOVES AND RAMBLING ROSES IN THE DELL AT KEW.

closer, and the larger ones a little wider apart. The best variety for sowing in August is Early London. The best for sowing in heat in spring is early Snowball. Erfurt Dwarf and King of Cauliflowers are excellent for mid-season, and Dickson's Eclipse and Autumn Giant are the best for late summer and autumn.

CELERY.—This plant is found growing wild in ditches and marshy places in this country. It is well for the grower to bear this fact in mind, for success in its cultivation depends largely on an ample supply of water during the summer and autumn. There are two methods by which Celery is usually grown, in single trenches and short rows across wide beds. Large specimens can best be grown in single trenches. If the grower wishes to grow for quality rather than for size, then the latter system is the best and most economical, as a larger number of plants can be grown in the same space, and the labour of earthing up is not so great. Land that has been cropped with Broccoli is very suitable, for the time to open the trenches is when the last of the Broccoli are cut, namely, the end of May. Naturally the Celery prefers a deep, rather light soil, but it can be made to grow well in poor soil by the application of an abundance of well decomposed farm-yard manure. If the single trench system is adopted, mark out lines $4\frac{1}{2}$ feet apart—that is to say, the centre of each trench should be distant from the other by the above space. The trench should be from 10 or 12 inches deep and 15 inches wide, forming ridges between the trenches with the soil dug out. Let the trenches be filled with 7 or 8 inches of manure and on this 3 inches of soil; then dig and mix together and tread fairly hard. The trench will then be filled to within about 2 inches of the top. If very dry give a good watering and the trench will be ready for planting in a day or two. Give the plants a good soaking of water directly they are planted and shade for a few days. The end of May is a good time to plant the earliest crop and the plants are put out 10 inches apart in the row. The ridges of soil may be planted with dwarf-growing vegetables which mature early, such as dwarf Peas, dwarf French Beans, Cauliflower, Spinach and Lettuce.

When Celery is grown in beds the latter are dug 10 inches deep; the plants are put out in rows 12 inches apart across the bed, the plants in the row being 10 inches apart. The width of the bed will depend on the number of plants the grower decides to place in the rows; five plants in a row are usual, the bed would then be about $4\frac{1}{2}$ feet across; the space between the beds should be the same width, to allow plenty of soil for earthing up. The trenches are manured and prepared for planting in the same way as directed for the single trenches; the ridges, too, are similarly planted.

For the earliest crop sow a few seeds of Sandringham White and Major Clarke's, in February, in a pan of fine moist soil and place in a warm greenhouse or frame, covering with a piece of glass. As soon as the seedlings are through remove the glass and place the pans near

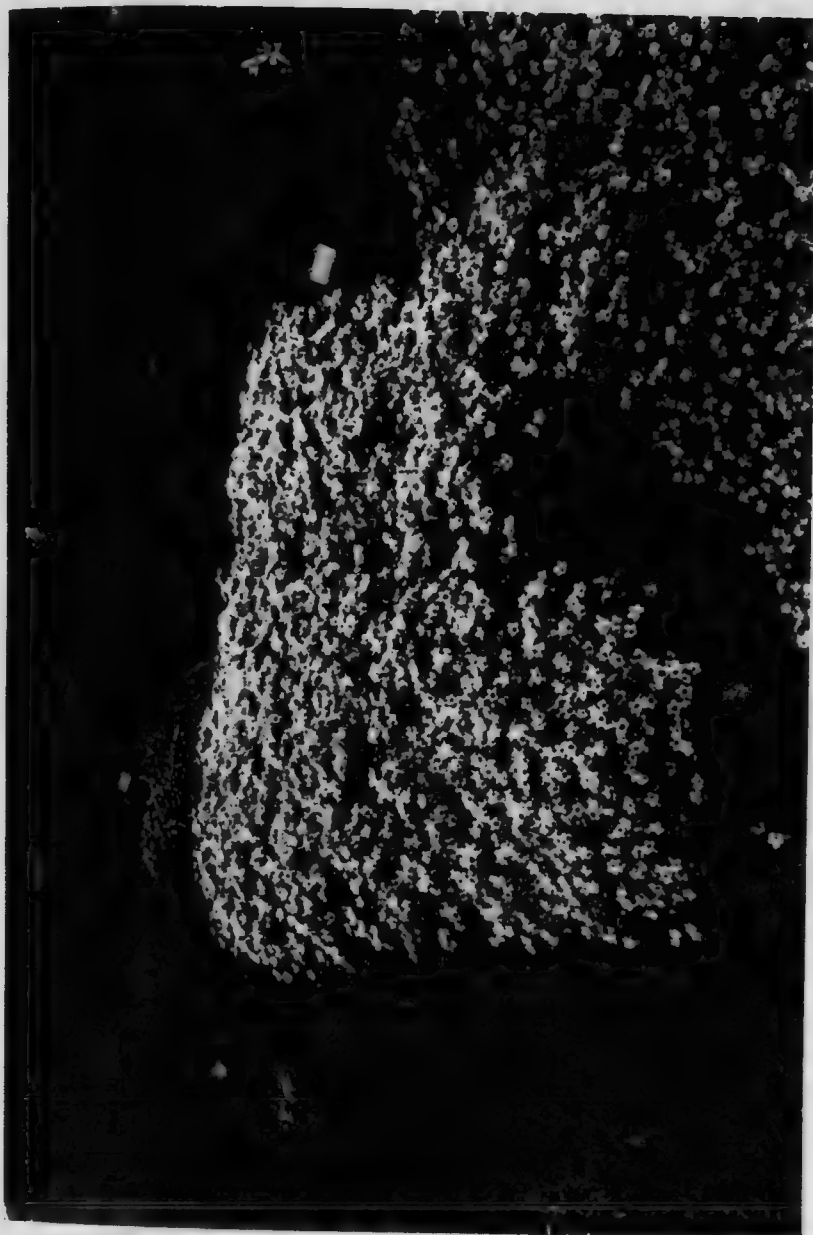
the glass. As soon as large enough to handle, transplant the seedlings 3 inches apart in shallow boxes of soil. In a week or ten days remove them to a cool greenhouse or frame. When they are from 2 to 3 inches high they are planted in a cold frame placed in a sunny, sheltered position. In the frame place a layer of rotted manure 3 inches deep when trodden down; then 4 inches of soil. Put in the young plants firmly and keep the frame close, moist and shaded for a few days, afterwards giving plenty of air on all favourable occasions and taking the light off on fine days. These plants should be ready for planting in the trenches at the end of May. The sowing for the main crop should be made at the end of March. A bed made up as advised for that in the frame is prepared out doors in a warm, sheltered spot for the seedlings, these having been hardened in frames. A rough light frame-work of wood should be made round about the bed, so that the young plants may be protected at night by mats placed round the sides. They must have careful attention as to watering and weeding, and will be ready for planting in the trenches late in June.

If the single row system is to be adopted let the plants be put out 7 inches apart and at once watered. The plants must not be allowed to suffer from drought at any time, or there is a danger of their "bolting" to seed. When about a foot high a little soil from the ridge should be placed over their surface roots, say an inch deep. The first earthing should take place at the end of August or early September (excepting, of course, for the earlier crops, when the earthing up should take place earlier in all stages). First remove all the small leaves and shoots from the base of the plant. Earth up when the plants are dry. They are loosely tied up with matting at a point a little lower than the centre of growth, and this will also determine the height to which they should be earthed up this time—it will probably be about 5 inches. Before the soil is placed round the plants it is a good plan to scatter a dry mixture of soot and lime over them to discourage attacks by slugs. The soil is placed firmly round the Celery with both hands. Fill the spaces with soil, take away the matting, and the first earthing up is completed. Three "earthings" are generally sufficient, the last towards the end of October. The earthing up of plants grown in beds is carried out in much the same way, excepting that it is an advantage to have two boards 7 inches deep and a little longer than the rows. Before placing soil between the rows, place one of the boards on edge against the plants on the right side, another on the left, then fill the space between the two boards with soil. Proceed to place the soil round the plants with the hands as directed before in the case of the single row. In frosty weather Celery should be protected with mats, bracken or straw litter.

It is the fashion nowadays to endeavour to grow Celery of large size. Celery should be solid, crisp, well blanched and of sweet flavour. These qualities are found in Celery of moderate size, but seldom

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A BRILLIANT SPRING SHOW OF PURPLE ROCK CRESS (AUBRIETIA DR. MULES).



the large and hollow-stalked specimens. The following are amongst the best:—Major Clarke's (red), Leicester (red), Sutton's Improved (pink), Sandringham and Veitch's Solid (white). Larger varieties are Standard Bearer and Manchester, both red.

CHICORY.—The value of Chicory is becoming increasingly appreciated in this country. The chief use made of it is by forcing the roots into leaf in a dark, warm place in winter, the new leaves being almost white and crisp, and much used in salad, though some object to the rather bitter taste. The Witloof Chicory produces large white leaves when forced in a temperature of about 55°, and commands a ready sale in winter. It may be blanched also in the open ground in spring and summer by earthing up the roots like Seakale, or by covering with pots and litter. It succeeds in ordinary garden soil. It should be sown in drills an inch deep and 12 inches wide at the end of May, the plants being thinned to 6 inches apart in the case of the ordinary variety, and to 9 inches apart for the Witloof.

CHIVES.—This is grown chiefly for adding to soups and salads, being of much milder flavour than the Onion. It is increased by dividing the roots in spring. The best way to plant is in clumps 8 or 9 inches apart. When gathering it is a good plan to cut the tops of one clump at a time; in this way it is possible to obtain three or four crops in the year. The roots should be divided and replanted every third year.

CORN SALAD or LAMB'S LETTUCE.—As an addition to the salad bowl, this plant is useful, especially in summer, when its leaves are young and tender. Seed is sown in February, April, August and September, in rows 9 inches apart, the plants being thinned to 6 inches apart in the row. It will grow in any ordinary garden soil, and the only cultivation needed is occasional hoeing to keep down weeds. It should receive protection from hard frost. The round-leaved and the Italian are the sorts usually grown.

COUVE TRONCHUDA.—This is a vegetable of no great importance, but it offers an agreeable change. The plant is a strong grower, and should be planted in good soil in rows 3 feet apart, 2½ feet being allowed between each plant in the row. Sow broadcast in a prepared bed of fine soil early in March, and as soon as the plants are large enough to take hold of plant, in rows. The midrib of the outer leaves is the part chiefly valued, though the heart or centre is appreciated by some.

CRESS, AMERICAN.—When Watercress cannot be had this makes a useful substitute. A stock may be obtained from seed sown in March. As soon as the young plants are large enough to plant out, which should be about the middle of May, a position is prepared for them in the coolest part of the garden on which the sun does not shine. Let the soil be deep and liberally manured, planting the young plants in rows 10 inches apart, and the same distance from plant

to plant in the row. This plant is quite hardy, and will give a good supply through the winter, spring, summer and autumn.

CUCUMBER.—The chief needs of the Cucumber are light, moisture and rich soil. The best structure is a span-roofed (with large panes of glass), say 9 feet wide; height at the apex, 8 feet, the side walls being $2\frac{1}{2}$ feet higher than the ground outside. A brick wall, say a foot high, is built on either side of the central path to form two borders for the plants. Cucumbers succeed best when the manure in which they are planted is placed on a foundation of manure (the plants are to fruit in winter, $2\frac{1}{2}$ or 3 feet of littery manure being trodden firm) is necessary. This would maintain warm temperatures for several months afterwards.

Let us suppose that we wish to have a good supply of Cucumbers for Lent and most of the year afterwards. The hotbed of manure is made up the first week in January. The manure needs to be turned up in heaps to ferment, and to be turned several times before it is used. The heap should not be left undisturbed for more than a few days at a time. Whilst the hotbed is being made the house should be freely ventilated to let out the rank gases from the manure, and the woodwork will be stained. The seeds are sown singly in 3-inch pots, covered with glass and placed on the bed of manure. The seeds soon germinate; when seedlings appear the glass covering is removed. In about ten days find out the temperature of the manure by thrusting in a stick and leaving it there for two hours or so. Then take it out and feel it with the hand. If it is hot, let the plants remain on the surface of the bed a few days longer. If, on the other hand, the stick is only moderately warm, the little pots should be placed to the rim in the manure. It is best to be provided with a bulb heat thermometer which, on being put in the bed, indicates its temperature. The young plants may be plunged as soon as the thermometer falls below 80° Fahrenheit. As soon as the plants have formed two or four leaves and are nicely rooted they are planted out in hillocks of soil placed a day or two previously on the bed of manure at 2 feet apart. This will be about the last week in January. The night temperature should not fall below 63° . The soil should consist of light turfy loam and leaf soil in equal proportions. In a temperature of 75° by day and 65° at night the plants will make wonderful progress.

When about 2 feet high each plant is "stopped." (Cucumbers sometimes form on the upright main stem, but should be cut off. Side shoots or laterals soon appear, and it is on these that Cucumbers are produced. Any side shoot bearing a female flower (distinguished by possessing an embryo Cucumber at its base) is stopped at the leaves above the flower. All young shoots are treated similarly. Finally the roof becomes covered with fruit-bearing shoots. Some barren shoots appear; these must be cut back to within three leaves of the base; other growths that form will be practically certain to bear fruits. Cucumber plants in a healthy condition will bear

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crops for some six weeks after the first fruits appear. Then they "take it easy" for a time. At this period long barren shoots are cut out, and others are cut back to within three or four leaves of their base. The plants will then soon furnish another crop almost equal in weight to the first. As soon as the fruits are full grown they should be cut. As regards Cucumbers in winter only, it is advisable to fertilise the female flowers by applying to the stigma the pollen from the male blossoms, usually more numerous.

Cucumbers need no ventilation at all until the end of March, and air is then only given at the top of the house. The temperature should not fall below 70° or 75° by day, and 60° or 65° at night. It may rise occasionally to 90° by sun heat if the plants are healthy and strong, and they will revel in it. The atmosphere should be kept moist by syringing the walls, borders, etc., with lukewarm water. The soil recommended for the initial planting was half turfy soil and half leaf soil, but as the plants gain strength the top dressings, which from time to time as fresh roots show through must be added, should consist of three parts turfy soil and one part well decayed manure. When first planted in winter great care must be exercised in watering, the object being to keep the soil moist though not wet. When the plants have filled the border with roots they need copious supplies of water, which should always be warm. When in full bearing manure water should be given alternately with clear water. Drainings of a manure heap diluted with water are the best, but Peruvian guano, one handful to 3 gallons of water, is also excellent.

Varieties.—For growing under glass Rochford's Telegraph. Lockie's Perfection and Delicacy are amongst the best for summer. For winter and spring choose Sutton's Every Day.

ENDIVE.—This is one of the most important winter salad plants. A sowing is made of the early curled varieties about the middle of July in the south and a week earlier in the north. A sowing of the hardier broad-leaved Batavian variety is made the first and last weeks in August. The seeds are sown thinly broadcast and covered lightly with soil. When the plants are 2 inches high they are planted in rows 15 inches apart, each plant being 12 inches from its neighbour. The soil ought to be well dug and manured before planting takes place. During summer hoeing frequently is necessary to keep down weeds and to encourage free growth. The leaves are not used in a green state, but are blanched. Blanching is accomplished by placing flower-pots, slates or tiles over the plants, or a row can be blanched at once by putting a rather heavy plank over the centre of the plants. The latter may be taken up and replanted in a dark mushroom house or hothouse where it is moderately warm. The latter is a good way of blanching the Broad Batavian variety in winter. To have a continuous supply throughout winter and spring, it is advisable in December to have the plants carefully lifted and replanted close

together in pits or frames, where they can be protected in case of hard frost.

GARLIC.—This is used exclusively as a flavouring ingredient. It may be grown from seed sown in light soil in a warm position in March, but the usual way is to plant the small bulbs or "cloves" that fall round the old bulbs. These are planted 3 inches deep in rows 1 foot apart in March, the bulbs being 8 inches apart in the row. It succeeds best in warm, rather poor soil, and should be harvested as soon as the tops die down at the end of summer in the same way as the Onion.

GOURD.—Gourds are grown in this country for their curious forms of fantastic shape and ornate colours. On a warm, sheltered border they provide a feature of great interest, especially when trained on poles or chains, or against a wall. They should be planted in rich soil. Seeds are sown about the middle of April in a warm greenhouse, one seed in a 3-inch pot. Subsequently re-pot into 5-inch pots and keep in the greenhouse until about the middle of May. Then the plants should be exposed to cooler treatment to prepare for planting in open doors the first week in June. In France Gourds are used in conjunction with apples and other fruits; as they will keep in good condition for months after they are ripe if hung up in a cool room, their value for this purpose is apparent. The edible sorts are *Cucurbita maxima*, *moschata* and *Pepo*. The following are amongst the best of the ornamental sorts: Mammoth, Spanish Giant, Ohio Squash, Hubbard Squash, Large Green, Large Yellow, The Crown or Custard, The Nag, The Nutmeg, The Patagonian, Bottle Gourd and The Turk's Cap.

HORSE-RADISH.—There is not a very large demand for this in private gardens, hence, as a rule, it receives little attention, and is usually relegated to some out-of-the-way corner of the garden, where out of sight is often out of mind. It deserves a better fate, for the difference in flavour between a badly grown and a good root is considerable. The commonest method of cultivation is to trench the ground 3 feet deep and apply rich manure, planting the root cuttings in rows 18 inches apart and 9 inches between the sets in the row. Holes 12 inches deep are made, the sets being put in and covered with soil. The sets are formed of the roots and should be about 5 inches long in March. By this method of planting it takes two years to bring the roots to full size. The cuttings are buried 2 inches deep.

Another, and probably the best method is to draw drills 6 inches deep and 15 inches apart, and plant the root cuttings flat in the drills. Cuttings for planting this way should be 9 inches long (leaving 1 inch space between each root in the row when planted). Fill the drills with soil, and press firmly down. Any root cutting will form a plant, whether it has a crown at the end or not; but it is well in forming the cuttings to cut the top straight across and the base slantingly. Good sized roots are formed in one year by this method, and in two years excellent roots are produced. When it is desired to possess the

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A GROUP OF ROCK' N' (SAXIFRAGA HOSTII) ON A ROCK-STREWN BANK.



of roots, a row or two should be planted each winter or spring. The cultivation offers no further trouble or labour after planting than to keep the ground free from weeds by hoeing.

KOHL RABE.—This is a curious member of the Cabbage family. Instead of the leaves developing, the stem grows instead until it assumes the size and shape of a Turnip above ground, with leaves here and there growing out of it. It may be said to be half Turnip and half Cabbage. It is grown as a farm crop chiefly and valued for its great hardness. It withstands severe frost without injury. Seeds are sown thinly in March where the plant is to be grown. The rows should be 18 inches apart and the plants thinned to 12 inches apart in the row. Its cultural needs are the same as those of the Cabbage. For garden purposes the Early Purple and Early White are the best.

LEEK.—This is one of the hardiest and the easiest to grow of all vegetables. It will grow in almost any sort of soil, and may be had in use for six months. It is highly appreciated by most people, and for flavouring soups, from cock-a-leeky downwards, it is indispensable. Seeds for the main crop are sown the second week in March in drills 9 inches apart in friable soil in an open position. If an earlier supply is desired a few seeds are sown in a frame the second week in February. For succession a few seeds may be sown early in May. Where possible let the land be trenched and liberally manured some weeks or even months before planting takes place. Large, well blanched stems are grown in liberally manured trenches, like Celery, and earthed up in the same way, planting 10 inches apart. In the ordinary way they are planted in rows 15 inches apart, allowing 8 inches between each plant. The young plants should be 7 to 8 inches high when put out. Deep holes, about 2 inches wide, should be made, and the plants dropped in to within a couple of inches of their tops. Place only very little soil over the roots. Leave the top of the hole open, filling it up as the plants grow; a portion of the stem will in this way be blanched. If the trench system is adopted, the earlier-sown plants are put out 9 inches apart; they will then have a longer season, and will grow into large specimens by autumn. Those from seeds sown in May are planted in rows 12 inches apart, allowing 5 inches between each plant. During summer the ground must be hoed frequently. The plants may be taken up in winter and stored like Carrots, but the midsummer and late ones are best preserved by leaving the plants in the ground all winter. Good varieties are: The Prizetaker, Musselburgh, Ayton Castle Giant, The Lyon, and the London Flag.

LETTUCE.—As a salad plant this is the most valuable of all, and well deserves the best attention of gardeners. There are two distinct types of Lettuce: the Cos and the Cabbage. The Cos type assumes an upright and more or less conical form, the leaves being of oval shape. The Cabbage Lettuce forms a low spreading head with rounder leaves, very much like a Cabbage in miniature. The Cabbage Lettuce

is hardier than the Cos, and is, therefore, more grown for winter and early spring supply. The Cos Lettuce is, however, of better flavour. Both prefer a deep, well tilled and manured soil. Lettuce is a deep-rooting plant; therefore most of the manure should be buried a foot deep when digging the land. Towards the end of January a few seeds should be sown in a box in a warm greenhouse near the glass. The seedlings are transplanted 3 inches apart in other boxes placed in light and airy positions in the greenhouse. When the plants are about 3 inches high the boxes should be placed in cold frames. Planting out is done early in April in a warm corner of the garden. An excellent plan is to have cloches placed over them. These protect the young plants at night and encourage free growth and early maturity. The plants must be protected from slugs and also from birds. Plant in rows 1 foot apart each way. A little seed of Tom Thumb Cabbage Lettuce should be sown at the same time and treated in the same way. It will be ready a fortnight before the Cos. Plant 7 inches apart. A sowing of both kinds should take place in warmth at the end of February. The best variety of the Cabbage Lettuce to sow (except for the first early crop) is Stanstead Park. Of Cos Lettuce, choose Paris White Cos.

The First Outdoor Sowing.—There is nothing gained by sowing Lettuce out of doors before the last week in March, and then a warm, sheltered position and light, well dug soil should be chosen. Seed may be sown in drills or broadcast, but we think the plants are easier managed in drills, which should be about an inch deep, the rows being 9 inches apart. Buy the best seed. During July and August it is not easy to maintain an unbroken supply of Cos Lettuce. Therefore the grower should be prepared with a few plants of the Cabbage type to fill gaps.

During the summer hoe frequently, and in hot weather water frequently with liquid manure water, and mulch the soil between the plants with rotted manure.

The leaves of the best varieties of Cos Lettuce fold over each other sufficiently close to blanch them. When they do not, it is necessary to tie the top of the plants together. To maintain an unbroken supply of Cos Lettuce through summer and autumn and into winter, sow a few seeds every fortnight during summer until the middle of August. From this sowing a larger planting than usual should be made, because in late autumn many of the plants may be lifted from the ground and planted fairly close together in cold frames, and then may be enjoyed until late in December. To extend the supply of Cos Lettuce still further, seeds should be sown towards the middle of September, the seedlings being planted in cold pits and frames. These will give a supply well into the New Year if looked after in the way of giving plenty of air when the weather is favourable and protecting from hard frost by covering the frames with mats or litter. The last sowing is made the first week in October in boxes in a frame.

Later the seedlings are planted in the frame 3 inches apart; they remain dormant during winter. In spring, as soon as they begin to grow, the plants are thinned out to 7 inches apart. Those thinned out are planted in the garden, and those left in the frame encouraged to grow to provide an early supply. This supply will be closely followed by those sown in warmth at the end of January. I have treated chiefly of the Cos Lettuce, but the same treatment in every respect should be observed in growing the Cabbage Lettuce, excepting that in spring the earlier varieties may be planted in rows 9 inches apart, leaving 7 inches between plant and plant in the rows. Later varieties for summer are planted in rows 1 foot apart, the same distance separating plant from plant in the rows.

Hardy Lettuce.—The Black Seeded Cos and Hick's Hardy Cos should be sown the first week in September, and planted out in the open garden at 9 inches apart as soon as large enough to handle. They will survive an ordinary winter fairly well without protection, and when they do so turn in most useful in late spring.

Of Cabbage Lettuce, the old hardy Hammersmith is still the hardiest and one of the best. This and Stanstead Park are the best for winter planting in the open. Of summer and autumn sorts the following are amongst the best:—Cos Paris Market, Mammoth White Cos, and Hick's Hardy White. For Cabbage Lettuce, for first early sowing, choose Tom Thumb or Harbinger; for later sowing, Stanstead Park, All the Year Round and Marvel.

MUSHROOM.—In most private gardens Mushroom houses proper are provided. These have beds raised one above another, which may be constructed of bricks, iron or wood. Strong slate slabs are also sometimes used. They should be 11 inches deep, 2 to 3 feet wide, and about 2 feet above one another. Such houses are generally heated with hot water. Disused cellars are excellent places in which to form beds, so also are empty buildings or sheds. Glasshouses, such as vineries and Peach-houses, which lie idle during winter, are useful for the purpose—in fact, any place with a roof over it may be successfully utilised for Mushroom growing. Many experiments have been tried with the object of growing Mushrooms in other materials than straw litter and horse manure, but as far as I know without success. Half litter and half manure form the best Mushroom beds. It is seldom that enough fresh horse manure can be collected in less than ten days or a fortnight. Make heaps of the manure, adding to the heap each day until, say, a cartload is secured. This will soon ferment and become warm; when it has been standing for eight or ten days the heap should be opened out, then much of the moisture and the noxious gases will escape. In an hour heap it up again for eight or ten days. It will then be dry enough for use. Should the manure have become too dry, add a little fresh manure. If too much fermentation has taken place, then the manure soon becomes cold and of no use for Mushroom growing. On the other hand, if it is not fermented enough the manure

is not sufficiently cleared of impurities, making it impossible to have full success. The first beds may be made up in early September.

When beds are formed in houses, in a shed, or cellar, they are usually made up flat and 11 inches deep. Fill up a yard or so, and ramming it down hard with a wooden mallet. When the bed is filled insert a bottom-heat thermometer; it will register 60° Fahrenheit. In a few days the temperature will rise considerably, and at the end of seven or eight days the thermometer will register 85° or 90°. Should it rise much higher than this, 100°, holes, about an inch in diameter, should be bored in the bed at distances of 18 inches apart, to let some of the heat escape. It is not necessary when the manure has been properly prepared.

Spawn containing the mycelium of the Mushrooms is commonly in the form of thin, flat "bricks." It should be hard and dry, but possible not more than one year old. If kept dry and cool it may be in good condition for two years. The spawn is so sensitive that if kept in a damp, slightly warmer place the tiny grey threads (mycelium) which permeate the brick will begin to "run," and soon become whiter. Spawn of this character is to be looked upon with suspicion. When the temperature of the bed has fallen to 70° or 73° it is time to insert the spawn. The "brick" is broken into ten pieces, each hand and each piece inserted in a shallow hole made with the spade 9 inches apart. The lump of spawn when inserted should be just below the surface; the manure is pressed well round it. The bed is covered with turfy soil, broken to pieces with the hand and passed through a sieve of 1-inch mesh. Soil known to have been well manured should not be used, neither should cold, heavy soil. An inch of soil or rather less is necessary. It should be pressed down, and made level, then beaten with the back of a spade. The surface is thus brought to the consistency of paste, sealed with the spade, were, to prevent heat escaping. If the soil is too dry to be pressed into this condition the spade must be dipped frequently in water.

Light is excluded by darkening the windows, or by covering the bed slightly with littery straw, or even with mats. The bed requires no further attention for at least six weeks, when it should be turned over and any damp or mouldy litter should be rubbed off with the spade, straw, being, of course, careful to look beforehand for any signs of young Mushrooms. If in places the bed looks rather dry, water with tepid water through a fine "rose" on the watering can. It may happen that Mushrooms do not appear for months. Cold does not hurt the spawn; it lives in pastures through the hardest soil. Mushrooms should not be cut with a knife. Take hold of the stem with the right hand and give it a gentle twist; it soon comes out with stalk and all. Sometimes a little of the stem is left in the bed, and should be scraped out with the knife, or it may decay and spoil many of the young Mushrooms. A bed ought to be turned over for profitable bearing for two months. It should then be turned over again.

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manure is still valuable to the gardener. When the surface soil appears dry, it should be given tepid water applied through a fine "rose" on a watering can.

Growing Mushrooms Out of Doors.—Market growers grow their crops chiefly in open fields in ridge beds. The preparation of the manure and the beds is the same as already detailed. If convenient sites are available in sheltered positions they should be chosen to save labour in protecting the beds from cold; but Mushrooms on ridge beds may be grown even in open fields, providing they are protected with straw litter to keep up a temperature of from 55° to 60°. If formed any time between the end of September and the end of January, the beds should be 3 feet wide and 3 feet high, tapering to 6 inches at the top of the ridge. If formed from the end of July to the end of September, or in February and March, they may be 2½ feet wide and of the same depth. It does not pay to form beds out of doors between the first week in April and the first week in July, as Mushrooms cannot be grown profitably in hot weather out of doors. If the ground falls, let the ridges be formed to correspond with the fall; if on the level, let them run from north to south. Mark the site of the bed with a straight furrow on each side and at the ends. Place the manure on the site marked out, treading it down hard. Build the ridge so that the apex is 6 inches wide only. When, by means of a bottom-heat thermometer, the heat of the bed is found to be 60° spawn should be inserted. Cover the bed over with 2½ inches of soil and batter into a pasty surface with the spade; it will then not be more than about three-quarters of an inch deep. The ridges will probably not be ready for spawning for ten days. In the meantime the bed should be sheltered from rain. When formed on a large scale in open fields it is not always possible to use good turfy soil to cover the beds with, then recourse must be had to the natural soil. Dry straw litter is best for covering the beds; in very cold weather it has to be placed over the ridges a foot deep, therefore it is necessary to provide a large stock of it. Where difficult to obtain, tarpaulin and mats should be used as well. A bottom-heat thermometer should be plunged into each bed, and the heat from time to time be ascertained. If found to be lower than 57° to 60° further covering must be added, and less if the temperature is higher than 60°. The beds ought to be in bearing two months from the time of spawning, and should yield Mushrooms for a similar period. The middle of the day, when the weather is warmest, should be chosen for gathering the Mushrooms, and no time should be lost in re-covering the beds.

MUSTARD and CRESS.—These homely and useful salad plants may be grown by all. They may even be grown without soil; sown rather thickly on a wet blanket or a piece of flannel which is kept moist and in warmth, they succeed well. But Mustard and Cress is of better flavour when grown in soil. In spring and summer seeds may be sown in any part of the garden out of doors, but they thrive best

in a shady position in hot weather. During winter they grow in any out-of-the-way position in glasshouses, provided they have adequate heat; even in the windows of living rooms, provided they are carefully looked after as regards watering. The seeds are sown thickly on the soil surface and pressed slightly into it, and just covered with soil. Mustard matures more quickly and grows more strongly than Cress.

ONION.— Few vegetables are in greater demand. Some varieties are of less pungent odour than others, the red ones being the worst offenders. The Onion will grow in any warm, well drained and cultivated soil, but the finest specimens are obtained from well tilled land. Soil that was trenched and heavily manured the previous year—Celery, for example—suits it best. Onions do not like loose soil; supposing they are planted after Celery, that it is necessary to do is to dig the ground, level it, and make it in early March. Sprinkle wood ashes freely on the surface, draw drills 12 inches apart and 1½ to 2 inches deep. Sow the seeds, cover the seeds, and tread firmly. It is the custom with some gardeners to sow the seed in boxes in a cold frame and to plant the seedlings in a bed of soil in the frame, or pot them singly in pots and plant in the open ground with a trowel about the middle of April, when the danger from the Onion fly has disappeared. Onions are secured by this method, and its practice is recommended where only moderate quantities are grown. If large bulbs are wanted, thin the plants to 9 inches apart, if moderate roots to 6 inches, and if small roots are preferred do not thin at all. The frequent use of the hoe is necessary during summer. The size of bulb and weight of crop is increased by the application of Peruvian guano immediately before the plants begin to "bulb." It should be applied by scattering it lightly broadcast in showery weather.

Harvesting the Crop.—In late August or early September Onions will be ready for pulling up. If the weather is warm and dry the tops will wither and die naturally; the bulbs are pulled up and laid on the surface thinly, with the roots facing the sun. Should the weather be wet, the tops will remain green and maintain an upright position for a longer time than is desirable. Indeed, if allowed to remain too long in the ground there is a danger of their starting a second growth. The best plan then is, with the back of a wooden rake, to bend the necks of the Onions level with the ground, and break them. This will arrest their growth, and soon bring them into a condition fit for pulling. They should be placed on a walk in an open position, exposed to wind and sunshine. For a fortnight all the dead foliage should be rubbed off, and the bulbs stored in any cool, dry, airy loft or outhouse that is frost-proof.

Varieties are numerous, but the following are amongst the best:—Bedfordshire Champion, a good keeper, large size, mild flavour; James' Long Keeping; Brown Globe, an excellent

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A SPLENDID CROP OF ONION AILSA CRAIG IN A GARDEN NEAR DERRY.



heavy Onion, remains a long time in good condition; Ailsa Craig and Tripoli are large and handsome and keep well.

Autumn-Sown Onions.—With the help of this type Onions may be enjoyed every day in the year. Two sowings of these should be made in drills 9 inches apart at the end of July. The seed should be sown fairly thickly, as the young Onions will be useful for salad throughout autumn and early winter. The main crop for spring use should be sown in the middle of August. The young plants of this sowing will also be useful for pulling throughout the winter. The plants must be thinned out to 10 inches apart before growth commences in spring. (Those thinned out can be planted thickly in a shaded position for later use.) If very large bulbs are wanted, the land they are planted in must be trenched and heavily manured, but good crops can be had from ordinary well dug soil, if it is not too heavy and damp.

Good sorts are Giant Rocca, Globe, Tripoli, White Leviathan and Lemon Rocca.

Onions for Pickling.—These should be sown in drills 10 inches apart early in April in an exposed position in poor soil. They should not be thinned; the only attention they need is hoeing in summer to keep free from weeds and harvesting when ripe. Good varieties are small Paris, Silver Skin and White Queen.

Potato or Underground Onion.—This is not so commonly grown nowadays as it used to be. It is really of no particular value, but comes into use early, about the end of June; it is grown in much the same way as Shallots. Small bulbs are planted in October or November in ordinary soil; the result is a crop of new ones clustering round the old bulb. They will be ready for use the following June. The Potato Onion does not succeed well in the north, owing to the severity of the weather. It is increased by planting the bulbs.

PARSLEY.—Parsley is more or less in demand every day in the year. It is a deep-rooting plant, and should be grown in well cultivated soil. The summer crop is sown in drills, 15 inches apart and about an inch deep. The plant thrives best in the partial shade, say on a border facing west. If this crop is considered of importance three sowings should be made: one about the middle of February, another in April, and another in July. The latter is sown broadcast on a piece of land facing south, and of such area that a portable frame can be placed over it in late autumn and winter. If left unprotected, Parsley is liable to be killed by severe frost. It is important to thin the plants early, for better quality produce is obtained than when the seedlings are crowded. The thinning should not be done all at once, but at three times, finally leaving the plants 5 inches apart. Frequent hoeing in summer is necessary. Good varieties are Dwarf Fern-leaved, Hardy Winter and Double Curled.

PARSNIP.—In addition to its value as a vegetable, the Parsnip is largely used in country districts to make home-made wine, and excellent this is when kept long enough. The Parsnip is a deep-rooting

plant, and needs a deep soil; if this is of a light, rather than a heavy texture, so much the better. The land should be deeply dug in autumn, and a moderate quantity of rotted manure added. If trenching is delayed until spring no manure is used. The Pea needs a long season of growth, and the seed must be sown about the middle of February, choosing a day when the ground is fairly dry. Drills are drawn 15 inches apart, the plants thinned to 10 inches apart. Sow thinly, and cover with 2 inches of soil. After the final thinning, all that need be done is to keep down weeds by hoeing. The plant is hardy, and better quality roots are obtained by leaving them in the ground all winter, simply taking them up as wanted. When a hard frost is expected, cover a portion of the crop with straw to prevent the ground from freezing, so that as many roots as wanted can be taken up. They must be taken up in spring as soon as growth is apparent (or they will be spoilt) and "clamped" in a cold place like Potatoes. They will remain in good condition for months afterwards. The Hollow Crown and the Student are the best varieties. The former is large and heavy, and best for general use; the latter is credited with being of better quality.

PEA.—There is ample evidence that the Pea has never been grown to greater perfection than it is grown to-day. But the gardener must not take all the credit to himself for this; for of late years there has been a great improvement in quality and productiveness. This is particularly evident in the case of early Peas. Not many years ago the small, rounded, white-seeded flavourless sorts were exclusively grown for early supplies. Now we have excellent first-early varieties amongst the wrinkled marrow varieties. In considering the value of the Pea as an article of food, it should not be forgotten that it is as valuable in winter as in summer. The harvested seed during winter and spring enters largely into the dietary of the people; at one time Peas were considered of greater importance even than the Potato. It is, however, with the Pea as a summer vegetable that we have to deal. The land should be deeply dug and liberally manured. Manure that was enriched for a crop the previous year, such as Celery manure, suits the Pea better than soil recently manured.

The First Crop.—It is possible by sowing in light, warm soil in November to obtain an extra early crop, but the risks are so great from mice, birds and the weather that it is scarcely worth while. Better crops and as early can be obtained by sowing the seed under glass in long, shallow V-shaped boxes. The young plants are easily turned out of these boxes into a well prepared border in a sheltered position without the roots being disturbed. Care must be taken to press the soil closely and firmly to the roots, and to give them a good watering. Protect them from cold winds by short branches of Spruce. When the plants are about 4 inches high have them staked. If the weather is favourable they may be planted out the first or second week in March. The seeds should be sown the first week in January.

3 inches apart and 2 inches deep, in three rows in the V-shaped boxes. They are placed in a cold frame and grown sturdily the whole time, being given ample ventilation. The frame should be protected against frost at night with mats.

The First Sowing Out of Doors.—This must depend somewhat on the weather; it would only defeat the end in view to sow in frosty or wet, sodden soil, but in early February it is generally possible to get the first seed in the ground. Draw a drill 4 inches wide and 3 inches deep; sow the seed in two rows, 2 inches apart in the rows. Draw the soil over the seed and make firm. Have a sharp look out for mice, as they are most destructive at this time, and trap if traces are found. The next sowing should take place the first week in March, and afterwards every fortnight until the end of June. A row or two of an early variety may be sown in July on the chance of picking to the end of October or even into November. Early dwarf varieties which require no staking are put in rows 2 feet apart; those needing sticks and growing 3 or 3½ feet high should be 4 feet apart. With the mid-season and late varieties better results are obtained by planting them at wide distances apart, and cropping the ground between with small growing vegetables. The seed drills should be 6 inches wide and 4 inches deep, each containing three rows of seeds 3 inches apart. When covering the seed leave a hollow, so that all moisture may collect there. During summer keep the ground well hoed. In dry weather place 4 inches deep of partly rotted horse manure over the roots and water when necessary. Growing Peas in trenches is adopted when extra fine Peas are wanted. Trenches are dug out as for Celery, a layer of rotted manure, 6 inches deep, being placed at the bottom and mixed with the soil by digging. The seed is sown as advised, and covered with soil to within 3 inches of the top of the trench. This plan is excellent in hot, dry weather, as the manure helps the plants to resist drought.

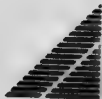
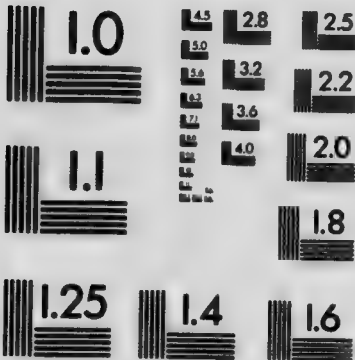
Varieties.—*First early:* Sutton's A 1, 3 to 4 feet; Early Giant, 3 to 4 feet; Empress of India, 4 feet; Eclipse, dwarf, and Little Marvel, dwarf. *Second early:* Duke of York, 4 feet; Alderman, 5 feet; Prince of Wales, 3 feet; Daisy, dwarf; Stratagem, 2 feet; Duke of Albany, 5 feet; Telephone, 5 feet. *Late:* Gladstone, Autocrat and Masterpiece.

Culture Under Glass.—Those possessing a greenhouse, pit, or frame, either heated or unheated, may grow early crops of Peas successfully. They may be grown in borders, pots or boxes. There are advantages in using boxes or pots, as they can be placed in positions near the glass, and empty corners in houses can be filled with them which otherwise, perhaps, would be empty. Light turfy soil, with a little leaf mould and a sprinkling of bone dust, makes an excellent compost. If boxes are used they should be from 8 to 10 inches deep and filled with soil pressed fairly firm. The Peas are put 2 inches apart and 2 inches deep. If pots are used, those 8 or 9 inches wide are a



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convenient size. Seeds are sown towards the middle of November again about the same time in December, whether for pots or borders. Place in a temperature of from 35° to 45° . The secret of success is to keep them cool during winter, giving air on all possible occasions. As soon as the plants are above ground, the nearer the surface they can be placed the better. They should be staked when 5 inches high. They must be watered with great care. The grower should not attempt to force the Peas by giving a high temperature and moist atmosphere; the experiment is sure to prove a failure. The only time it is safe to hurry the Peas a little is when the pods are half grown. Little Marvel and Harbinger are good sorts for this purpose.

POTATO.—To grow Potatoes successfully in English gardens, drained and well cultivated soil is essential. If inclined to be sandy it will be all the better and warmer. Heavy, clayey ground may be made suitable by draining and by adding some road manure and half-decayed strawy manure in autumn or winter. I have grown excellent Potatoes on such land by this means, but seldom see the roots of the highest quality. With poor, shallow soil overlying gravel or chalk the grower is also handicapped; without deep digging and generous manuring the yield there would be scarcely more than the weight of the seed planted. It used to be the custom, and still is with many gardeners to plant their Potatoes in land which had been heavily manured for another crop the previous year. I used to practice this method and obtained good crops by doing so, but discarded it in favour of trenching and manuring liberally the autumn and winter before, with the result that far better crops and better quality tubers were obtained than by the method discarded. It is the middle-sized Potatoes that should be saved for seed. After the usable and small Potatoes have been gathered and stored, let those selected for seed remain in the ground a week or ten days longer. Then they are lifted and placed in shallow boxes, one layer only in each box and kept in a cool, light, airy loft or shed from which frost is excluded. There they remain until wanted for planting, say towards the end of March in the case of the early ones, and for later ones the second week in April. By then the "eyes" or buds, will have started to grow. If there are more than two growths on a Potato, rub off the surplus before planting. Plant with the growth upwards and place the soil over them with care, so that the young growth is not damaged. The value of a change of seed has long been recognised by specialists and is not known so well to the public. I have had the privilege, like others, of inspecting the Potato trials which have been carried out at the Royal Horticultural Society's garden at Wisley for a series of years. Rows are planted side by side of the same variety, the one in one being home-grown and in the other Scotch or Irish. The imported seeds yield half as much again the first year as the home-grown saved. The result is the same to a certain extent the second year, but not so pronounced, and by the third year the advantages are lost.

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PEA, SUTTON'S MARROWFAT.

The first planting of early varieties out of doors in warm sunny borders may take place about the middle of March. The ground should be well dug before planting. From the middle to the end of April is a good time to plant the mid-season and late varieties. The rows for early varieties should be 2 feet apart, the seed tubers being 10 or 12 inches from each other. In the case of mid-season varieties of moderate growth the rows should be $2\frac{1}{2}$ feet apart, and the sets 12 inches apart in the row. Later, strong growing sorts are planted in rows $2\frac{1}{2}$ feet apart, allowing 16 inches between the sets in the rows. Early Potatoes are planted 4 inches deep, the second early and late varieties 5 and 6 inches deep respectively. The land is kept free from weeds by hoeing until the tops of the Potatoes meet in the row.

Earthing Up.—This consists in drawing up the soil with a "draw hoe" from between the rows and placing it round the stems 4 or 5 inches deep. This prevents the roots from getting dry quickly in hot weather, and so encourages a stronger growth; it also prevents those Potatoes nearest the surface from becoming green. If the land is rather poor a light dressing of soot before earthing up is helpful, and a sprinkling, three weeks later, of nitrate of soda would still further help towards securing a heavy crop.

Storing.—A common and satisfactory method is to "clamp" the Potatoes in the open. This is done by placing on the ground a layer of straw 2 inches deep, and over a space 3 feet wide; the length is governed by the quantity to store. Place the Potatoes on the straw and build a ridge to the height of $2\frac{1}{2}$ to 3 feet. Cover the sides and top with straw to the depth of 9 inches, then with 6 inches of soil. Every 3 yards a hole, stuffed with straw, is left for ventilation. Potatoes may be stored in any cool, dark shed available if safe from injury by frost. Too much light causes the tubers to become green and useless for cooking.

Forcing.—The Potato lends itself well to forcing, which may be carried out in various ways: planting in heated pits, frames, or growing in pots or boxes. Turfy soil, broken fairly small and passed through a sieve (1-inch mesh), mixed with an equal quantity of leaf soil, forms a suitable compost. To obtain a crop at the end of March the tubers are planted about the middle of November. A fresh planting should be carried out every month for successional crops until planting time in the open arrives. Seed for early planting should be saved from forced plants (those which are ripe in April); they will start into growth immediately, whereas later saved seed would be a long time in starting.

Varieties.—Sharpe's Victor and Express are amongst the best of the early varieties both for forcing and for an early crop outdoors. Veitch's Improved Ash Leaf is also excellent. Among the many mid-season varieties Duke of York and Windsor Castle are still among the best; other good ones are Southern Queen, Britannia and British Queen. One of the most popular late varieties is The Factor. Up

to Date, if a change of seed is secured, is hard to beat. King Edward is now largely grown for market ; it is a round red Potato.

RADISH.—When the roots are young and tender Radish is always appreciated, but when old they become stringy and unpalatable. The Radish likes a deep, light and well manured soil, and in spring, autumn and winter a warm, sunny position should be chosen for it. In summer it succeeds much better in a cool position or in partial shade. The first seeds should be sown thinly—broadcast—in a position late in January. Cover lightly with soil, and then cover over the soil some short littery manure to the depth of 2 or 3 inches. This will protect the seeds from birds and also from frost. As soon as the young plants show above ground take away the manure and protect with netting instead, placing this on rods to prevent it from weighing the plants. Make a similar small sowing every ten days or fortnight until the end of July. Then a larger sowing should be made in a warm position for autumn and winter supplies. It is necessary to thin out the plants from this sowing, leaving them an inch apart. If the last crop can be sown in frames, so much the better, since they would then be protected in winter. If sown in the open, the plants should have protection in frosty weather with strawy manure.

The way to obtain the earliest crops is to sow a few seeds amongst Potato, Carrot, or any early vegetable crops in frames. Radishes will be cleared off long before they are in the way of other crops.

As a substitute for the Radish proper in hot, dry weather (it is difficult to produce in first-class condition) there is a variety cultivated for its pods; when eaten quite young they are excellent for salad, the flavour being similar to that of the Radish. The plant grows from 2 to 3 feet high, and should be grown and staked like the Radish. It must not be permitted to form seeds or the plants will soon become exhausted. The common name for it is the Rat-tailed Radish, the pods taking that form. The pods should be gathered when the plants are young.

RHUBARB.—One cannot well overestimate the value of this crop as a plant as an article of food in the spring of the year ; it likes a well drained, deep, loamy soil. This should be trenched 3 feet deep and manured. Roots once planted will be productive for many years, so that a little extra labour and expense in preparing the soil should not be considered. There are two ways of propagating the plant, by division of the roots, and by seeds. The former is the best. A few stalks may be pulled the first year after planting, and more the second, and the third year a full crop. The best time to divide the roots is in spring, when starting into growth. This is also the best time for planting. An old Rhubarb root will be found to consist of several "crowns." Divide it into as many pieces as there are crowns, with a portion of root attached to each. Let them be planted 3 feet apart, and be a little above ground when planting is completed.

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grow Rhubarb from seeds, sow thinly in pots or shallow boxes towards the end of March in light soil, covering the seed lightly with soil. Place the box or pot in a frame with a temperature of 55° to 60° Fahrenheit. The seedlings are transplanted 3 inches apart in other boxes, or potted into 4-inch pots, and grown under glass until well rooted. They are then placed in a cold frame to harden off, and put out of doors early in May.

Forcing the Roots.—By this means Rhubarb can be had ready for use by the end of November, and afterwards until it is gathered out of doors. To force it early, say from November to the end of February, the best way is to place the roots in deep, well heated frames in a hothouse, mushroom-house, or, indeed, anywhere where a temperature of 55° to 60° can be maintained. The roots may be placed in soil in boxes, covering with an inch or so of soil and packing it round the roots. Give a good watering at the same time. They may be planted thickly in a bed of soil instead of in boxes. In March the roots are easily forced into growth outside, where they are growing, without doing the plants any harm (those taken up for forcing early are no use afterwards). Cover with deep pots or boxes, and on these place 2½ or 3 feet of manure. For the Rhubarb to be ready for pulling early in March the manure material should be put on at the end of February. To insure a succession a few more roots should be covered every fortnight.

Good varieties are Kershaw's Paragon, Dawe's Champion, Hawke's Champagne and Victoria.

SALSIFY.—This is a useful vegetable, valuable for its long, fleshy roots. It is cooked in various ways, but has not become very popular in this country. On the Continent it is thought much more of, and is called the Vegetable Oyster. The seeds should be sown thinly at the end of March on land that has been well manured for a crop the previous year; the roots are apt to become forked if grown on freshly manured ground. The drills should be 1 foot apart, 1 inch deep, and the young plants thinned to 8 inches apart in the rows. The roots are best taken up in autumn, although they are quite hardy, and stored in sand like Carrots.

SCORZONERA.—This, like the Salsify, has long, tapering roots, which are black outside and white within. It is cooked in the same way as Salsify, and if one may judge by the quantity exposed for sale in Covent Garden, it is becoming more popular. It succeeds under the same conditions as Salsify, and is stored in the same way for winter

SEAKALE.—This hardy and indispensable vegetable deserves to be more widely grown in gardens, especially as the plants never fail to produce a satisfactory crop in spring, even after the most severe frosts. It is propagated by seed and by root cuttings. The former way is scarcely ever practised now, entailing as it does longer time in securing a crop. Inferior varieties, too, may arise from seed sowing.

The Seakale is invaluable for forcing, and is largely used for this purpose. The root stems intended for forcing are dug up in autumn, and all the roots at the bottom of the root-stem are cut away to within 2 or 3 inches of the base of the stem; it is those cut roots that are used to form cuttings. After selecting the best, cut them into lengths of 5 inches. Cut the top of the roots straight across and the bottom in a slanting direction, so that at planting time you may know which is top and which is bottom. Tie the cuttings together in bundles of seven large roots and ten smaller ones. Bury these in soil to their tops at the foot of a wall facing north or any other similar position, and here let them remain until the end of the following March, when it will be time to plant them in their summer quarters. Plant in shallow drills, using a wooden "dibber," make the holes deep enough to allow of the top of the cutting being $1\frac{1}{2}$ inches below the surface, press the soil to the root and cover up. At the top of each root will be found little growths, commonly termed eyes. One or two of the largest, is permitted to remain. This little "eye" will form the crown of the root-stem in the course of the summer, and if more than one is permitted to grow they will spoil one another. The rows should be 18 inches apart and the roots planted 10 inches apart in the rows. This is the method of growing Seakale roots that are to be lifted for forcing. When it is intended to force the roots where they are growing they are planted in rows 2 feet apart, and three root cuttings are placed in groups in the row, the groups at 2 feet apart. Each cutting should be 6 inches apart, thus: . . .

There will thus be ample space between the groups of roots. Seakale pots or boxes, with at least 1 foot or 18 inches of top soil in them for the Seakale leaves to expand. When forcing begins, the ground around the roots and the pots is covered to the depth of at least 2 feet with manure to create sufficient heat to force the dormant roots into growth. This method of forcing is only suitable in spring, from the end of January; then Seakale may be expected to be ready for cutting at the end of February or early in March. From this time it be added from time to time to keep up a regular harvest. A succession of roots must be covered at intervals of ten days if a regular supply is wanted. Plants grown and forced in this way will yield good crops for several years, but they should only be forced every other year.

Another way of forcing the Seakale is by taking up the roots in autumn and placing in a heated glasshouse or other heated structure. A Mushroom house is an excellent place; wherever the roots are forced, light must be excluded, so that the foliage may be blanched. The roots can be packed close together and planted under the stage of a heated greenhouse, or they may be planted tightly in large pots and placed in any position where there is a little heat and where they can be covered over. Generally from a month to six weeks elapse before Seakale is ready to cut. A temperature of from 60°

65° Fahrenheit is suitable for forcing this plant. The roots when forced in this way are of no use afterwards.

Ordinary outdoor cultivation consists in planting cuttings in groups of three early in March; earth up the crowns of the plants with the soil to the depth of 15 inches—the young growths will force themselves into this soil, and become blanched. They must be cut before the leaves appear through the soil, or they will soon become green and the taste bitter. In cutting, remove a portion of the crown of the root with the head of Seakale, and be very careful in handling it, as it is very brittle and soon breaks. Keep the ground well hoed in spring and early summer until the foliage of the plants has covered the ground so effectively as to make it impossible for weeds to grow.

When the leaves die down in autumn the roots may be lifted with the fork. Cut the bottom roots off before forcing in heat as mentioned before. In taking up the roots it is necessary to pick up every piece, or it will be sure to grow again and prove a nuisance to the following crop. A deep, rather light, well drained, loamy soil suits Seakale best, and if this has been well trenched and heavily manured, roots of the highest perfection may be grown. This is not to say that good roots cannot be produced in ordinary soil with good cultivation and a liberal supply of manure, for they can; but the plant is a very strong rooter, and cannot be well grown in poor soil. The plants are ready to take up for forcing as soon as the leaves have partly fallen through decay in the autumn, say at the end of October, and Seakale may be had ready for use at the end of November and throughout winter and spring, until it comes in naturally out of doors in late spring. Lily White is the best variety to grow.

SHALLOT.—This is chiefly grown for pickling or for flavouring soup. It is a hardy plant, and may be planted in southern gardens in October and early in February in the north. When the tops die down in July the bulbs are taken up and stored like Onions. Shallots grow best in ground that was deeply cultivated and manured for a crop the previous year. The bulbs are planted in rows 10 inches apart, 6 inches being allowed between the bulbs in the row. The true Shallot has rather long bulbs tapering to a point. This is the best keeper, and seldom runs to seed. The Jersey Shallot is larger and rounder.

SPINACH.—An annual plant cultivated for its leaves only, yet one of the most useful vegetables, because so easily grown and available for use every day in the year when desired. Spinach likes a deep, rather cool soil for summer cropping, and drier and warmer soil for the winter crop. The first sowing should be made early in February, between rows of Peas and early Cauliflowers. Once it starts growing it is soon fit for use, and is not in the way of the other crops, as it takes up little room. For later picking it should be sown by itself in drills 15 inches apart: sow the seeds thinly and 2 inches deep. Sow a small quantity at intervals of three weeks until the middle of August,

when a large sowing should be made, as this will furnish the supply. Sow thinly, and when the plants are large enough to hold of, thin them out to 6 inches apart in the row. Make a sowing about the middle of September, as this will withstand winter better than the earlier-sown crop and give a good return in spring. It is advisable to protect the plants in very cold weather or they may succumb to hard and long continued frost. The Leaved variety is best for summer and winter. Some prefer Prickly Spinach for winter, believing it to be hardier than the Leaved, but I have not found it so. Very hot, dry weather is inimical to the growth of this plant, and if a continual supply is necessary is a good plan to plant a row in a well manured trench like a hot bed. There it is protected from the direct heat of the sun, and can be watered.

SPINACH, PERPETUAL.—This is especially valuable as a winter spring vegetable, being much hardier than the ordinary Spinach. It produces an abundance of green leaves in succession; no sooner one crop cut than another follows. It requires no special care, grows freely in ordinary garden soil so long as it has an open sunny position. It is useful to cottagers, as it never fails to produce a good crop of green leaves in spring and winter after the most severe frost. Sow seeds the first week in August in rows 15 inches apart and thin out the young plants to 8 inches apart. Use the hoe between the rows frequently to encourage free growth, so that strong plants may be established before winter sets in.

TOMATO.—Fifty years ago the Tomato (or, as it was then called the Love Apple) was little known and less cared for. It was raised by a few only, and merely for the decorative value of the fruit. In the last generation it has grown rapidly in public favour. With the aid of a heated greenhouse it is possible and comparatively easy to have it all the year round, though to provide a constant supply throughout the winter is an expensive matter. Tomatoes may be grown in any sort of glasshouse, so long as there is means for ventilation and sufficient heat to exclude frost. But if the most perfect be made of the plants, then a light, sunny, span-roofed house with large panes of glass that can be heated is necessary. Turf that has been cut from old pasture land and stacked forms an excellent soil together with the following ingredients:—To 1 barrow of turfy soil add 3 gallons of lime rubble, 1 quart of bone ash, 1 quart of quicklime and the same of soot. The turf is broken into pieces the size of a hen's egg. The amateur may wonder why it is necessary to be so particular as to soil, but only in this way are the best results obtained. During the summer months Tomatoes are usually planted out in a prepared border, cultivation in pots is preferred for early crops. It would be out of the question to dig enough turf to make a border, and we have to make the best of our natural soil if it is of average quality. It needs to be well drained.

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and made suitable by deep digging and manuring. To every three square yards of surface add a barrow-load of farmyard manure, a gallon of lime and the same of soot, and a quart of bonemeal, mixing the whole with the top 12 inches of soil as the trenching proceeds.

From eight to ten weeks should be allowed from the time of sowing the seed until the plants are wanted for planting out. If a large number is required, seeds are sown in shallow boxes, but if only a few are wanted, then possibly one or two 5-inch pots will do. Sow the seeds thinly in light, sandy, sifted soil, and cover slightly. In a warm, moist atmosphere the young plants will show above soil in eight or ten days. When about an inch high they are transplanted at 2 inches apart into boxes filled with light soil. Put them back in the greenhouse and shade for a few days; then expose to the light and give free ventilation. In about three weeks the plants will be ready to pot into 5-inch pots, in which they remain until planted out in pots or borders. When nicely rooted in the 5-inch pots, and from 8 to 10 inches high, they are ready for the final planting. If to be fruited in flower pots, choose those 8 inches wide; fill the pots three-parts only with the soil mixture previously mentioned; this will leave room for future top dressing. Press the soil firmly round and over the roots, stake the plants and place where they are to bear fruit. If planted in borders, let them be in rows and 15 inches apart in each direction. At every fifth row let the distance be 18 inches in order to allow room for the grower to get amongst the plants. Press the soil firmly round the roots in planting. When grown in pots in the greenhouse the best way is to train the shoots to a wire trellis 15 inches from the roof-glass. Plants in borders in large glasshouses are trained to upright stakes; bamboo canes 6 feet long are useful for this purpose. When the plants reach the top of the canes, any further stem-growth can be supported by tying string to the end of the stake and fastening to the rafters of the house.

Unlike the Cucumber and Melon, the Tomato cannot be grown successfully without a certain amount of fresh air, which must be admitted carefully, so that the temperature is not unduly lowered; on cold days air is admitted through the top ventilators only. When the weather is sunny and the temperature of the house is greatly increased by sun heat, then air may be admitted both through front and top ventilators. When Tomatoes are grown in pots the labour of watering is considerable. Thoroughly water the soil when water is given, and give no more until the soil is very dry (but, of course, not dry enough to cause the foliage of the plant to droop). When the plants are well rooted manure water may occasionally be applied with advantage. When the fruits are swelling fast, manure water should be given every other day, and the pots should be filled with a top dressing of soil, pressing it well down and using similar soil as for planting. Plants in borders do not need watering so frequently

as those grown in pots. The best way of training is to cut the plant to a single stem, cutting off all side shoots. During the summer no great difficulty is experienced in getting a crop of fruit, provided the house is kept fairly warm and freely aired while the plants are in bloom. In winter and spring it is different, and every flower as it opens should be fertilised by transferring the pollen from the anthers of one to the stigma of another.

Outdoor Tomatoes.—Provided the summer and early autumn months prove warm and sunny Tomatoes grown out-doors are successful. The warmest and most sheltered corner of the garden should be chosen. It will repay the grower to have the soil enriched and liberally manured with well decayed farmyard manure during the winter before planting. It is not safe to plant out until the end of the first week in June. Sixteen sized holes should be dug and the soil pressed carefully round the plants. Let the upper roots be buried an inch deep. Plant in rows 2 feet apart, allowing also 15 inches between each plant in the row. The simplest method of support is to have stakes driven into the ground in rows at intervals of 30 feet, securing to these stakes two fair sized wires, one at the top and one lower down, to which the plants may be tied. These will last for many years if taken care of; they should be 2 feet out of the ground. All side shoots are cut off, but the plants will not grow so freely as under glass. As soon as several leaves have formed on three or four of the flower bunches cut off the top of the plant. It would be of no use to wait for more fruits to form on the fourth bunch, as they would not ripen. When the fruits have formed cover the ground with a layer of manure 3 inches deep, and give occasional watering with manure water, or sprinkle the plants with a mixture alongside the rows: Superphosphate of lime, 1 oz.; of ammonia, $\frac{1}{2}$ oz.; sulphate of iron, $\frac{1}{2}$ oz. Much of the success of out-door cultivation is due to planting strong sturdy plants with a bunch of fruit already set. In weak plants the fruits are not formed until they have passed before fruits form. Seed should be sown from twelve weeks previous to planting time, and the plants must be hardened in a sheltered position before they are planted out.

Varieties are innumerable, and many of them are much valued. *Chemin Rouge* or one of its many forms is still one of the best. Other excellent varieties are *Carter's Sunrise*, *Frogmore*, *Sutton's Satisfaction*, *Holmes's Supreme*, *Lister's Prolific*, and *Golden Wonder*. Yellow varieties are *Golden Jubilee* and *Golden Cherry*. *Cherry Red* and *Cherry Yellow* are small-fruited ornamental Tomatoes.

TURNIP.—The Turnip is available for use all the year round, and is easy to grow. There is only one way in which it can be grown to perfection, namely, in deeply cultivated, rather light, cool, and well manured soil. On such soil the crop matures quickly, and the secret of success. Turnips will, of course, grow on poor soil, but the roots are long in maturing, and are hard and of little value. If sown too early the plants will run to seed. The last week in F

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VEGETABLE MARROW

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or the first week in March is as early as it is safe to sow. The first sowing should be in a frame placed on a hot-bed of manure, adding 6 inches of soil. Make this fairly firm and sow broadcast, covering the seeds thickly with fine soil. Take every opportunity of giving air freely: the day time, when the weather is favourable, and even at night leave a little on also, except, of course, when the weather is cold. Thin out the young plants to 5 inches apart. Water freely in dry weather, and in from six to seven weeks there will be small delicious Turnips fit for use.

Sowing Out of Doors.—The middle of March is as early as it is advisable to sow out of doors. Choose a border with a sunny aspect and rich soil, and sow broadcast. Cover the bed with netting to protect from birds. Thin the plants when ready, and water should the weather prove dry. To secure an unbroken succession of Turnips is necessary to sow a few seeds every three weeks. For those sown at the end of April or early May choose a cool position partially shaded. During summer cover the soil between the rows with manure. This, with occasional waterings, will insure the grower a fair quantity of good roots even during the hottest weather. The first sowing out-of-doors (in March) is broadcast, but later sowings should be in rows 15 inches apart, the drills being $2\frac{1}{2}$ inches deep. During the summer the soil should be hoed frequently. The plants should be thinned, leaving them 9 inches apart. The late autumn and winter crop is the most important. The principal sowing for this should be made at the end of July, and should be larger than the others, as many of the roots will come in for storing. The largest roots may be left for this purpose, those of medium size being used at once. The smallest roots may be left in the ground, as the young growth from these in spring is useful and appreciated by many as a spring vegetable. The tops of the roots when forced in warmth in spring and bleached in the dark form a useful addition to the salad bowl.

For early forcing, or for the first crop out of doors, sow the Red and White Milan. Early Snowball is excellent to succeed them. For midsummer the best to grow is Red Globe, as it stands the drought and heat better than the white sorts. For those who prefer a yellow Turnip, Golden Ball is the best. The hardiest of all the Turnips is the old Chirk Castle, and a small sowing of this should be made about the 12th of August.

VEGETABLE MARROW.—The best results are obtained with this delicious summer vegetable when the plants are grown on a bed of spent manure, or manure and soil mixed together in some sheltered corner of the garden. If grown in the garden plot, dig holes a foot deep, a foot and a half wide, and a yard apart, and fill to the surface with half-rotted manure, treading it down firmly and cover with a mound of soil 6 inches deep. Any form of heated glasshouse may be used for growing an early crop, but it succeeds best when planted in large span-roofed houses. Free ventilation must be given. The

Bush Marrow is found to be best to grow under glass. It is of com growth. Seed for the crop under glass is sown at the end of February in 4-inch pots, two seeds in each. When possessing three or four leaves, each seedling is planted in a mound of soil, the mounds 2 feet apart, above a small heap of manure (as for planting out of doors). If grown in boxes or tubs, a 5-inch layer of manure should be placed over the crocks at the bottom. The temperature should approximate 50°, rising to 65° or even more in the day-time with sun-heat and free circulation of air.

For the outdoor crop the seed is sown in small pots towards the end of April in warmth. The plants are grown in cool frames and kept near the glass. Take the lights off the frame on warm days, but place them on again at night. Towards the end of May the lights may be removed altogether, and the first week in June they are planted out. Give the plants slight protection against frost for the first few weeks by placing an inverted flower pot over each. The plants require no thinning out, as in the case of Cucumbers and Melons. When bearing heavy crops, the plants will repay the grower for occasional soakings of manure water. The Bush variety of Marrow is also best for planting in field or garden, but when planting in heaps of manure the trailing varieties are the best. The best Bush Marrows are the Cluster and the Chusan. The best of the trailing varieties are Moore's Vegetable Cream and the Large White and Green.

WATER CRESS.—This is a very useful native product common along many wayside streams in England. Where it can thus be found growing naturally, its flavour is much better than when grown artificially in muddy soil. Anyone having a stream running through or adjacent to the garden may soon provide themselves with a supply of Water Cress by putting out small plants (even slips with small roots will do) by the side of the stream on a level with the water, securing the roots of the young plants in position by small stones. Water Cress may be gathered for use all the year round, except for a short time in summer, when it is in bloom. It is then strong and bitter and unpleasant to the palate. The more the plant is cut in season the better it grows and spreads. Beds are formed about 8 feet wide and any length desired, near to and a little lower than a stream. It is necessary to dam the bed at its lower end and sufficiently high to have 9 inches of water over the whole surface. The overflow from the first bed may, if desired, be used to fill other similar beds, slightly lower than the first bed. It is essential that a slight flow of water runs through the beds. When the bed is formed, have the soil rich and add to it a liberal supply of well decayed manure; plant out young plants in rows 12 inches apart, allowing 7 inches between the plants in the row. Press the soil firmly about the young plants. Planting may be done in early spring. Indeed, the beds may be formed at any time except in summer. The plants may be easily raised from seeds.

CHAPTER XXXVI

FRUIT-GROWING MADE EASY

APPLE.—There have been chapters without number and even volumes written about the Apple; yet, apparently, the amateur gardener generally is little the wiser for this vast output from the pen of skilled gardeners. Perhaps all that is written has not been read; perhaps—but I might find many reasons for the ignorance of the ways and means of Apple growing that still exists. Let me say briefly that the best way for the inexperienced to learn how to grow fine fruits, whether of Apple, Pear, Plum, or any other, is to buy a tree and plant it in his garden. He may read books innumerable on the subject and be little the wiser, for much of the information tells of things of which he has no means of identifying. Let me, then, beg of the amateur who wants to know how to grow an Apple tree not first to study *THE COMPLETE GARDENER*, but first to buy the tree. Then, with the Apple bush in front of him and an acquaintance with the following remarks, I can promise him success. Let me have the courage to say that the Apple tree alone will prove a far more valuable teacher than the book alone, although if studied together I venture to say that success will crown the student's efforts. It is a commonplace to say that fruit trees need well-prepared ground. They do need it, and fine fruits are not grown without it. But any garden, whether in country or suburb, will grow good Apples if the soil is of average quality, and is first dug 2 feet deep. I would not use any manure if the soil is good—that is, if it grows other crops well—for, as a rule, young fruit trees of all kinds grow too vigorously for the first few years after planting. If your Apple trees are this way disposed, read what I have to say as to root pruning in the remarks about the Peach. When Apple trees are planted in tilled ground that has been used for vegetable or flower growing, no further preparation is needed than to dig the soil 2 feet deep and make a hole large enough to accommodate the roots when laid out their full length. If the tree seems to need manure later on, this can easily be applied in the form of a mulch or covering and lightly forked in when April comes round. When planting trees in grass land there are two chief points to remember—one is that a much larger hole is necessary, and the other that on no account is the grass to be allowed to grow round about the stem. The hole should be dug at least 5 feet across and 2 feet deep, and if the ground is naturally poor or very clayey, mix in some turfy soil as the hole is filled up again. This should be done three weeks before planting. Plant in November. What a frightful "to

do" about planting an Apple tree! This, I am sure, is what the reader is thinking. But I would remind him that an Apple tree is not here to-day and gone to-morrow. Probably for the best part of the planter's life it will stand witness, according to the measure of its success or failure, of the worth or worthlessness of his efforts at planting.

Pruning.—Most Apples are produced on spurs—those little outgrowths from the stems of the trees—but they are also produced on one-year-old shoots. I have seen bushes of Bismarck laden with fine fruits, and chiefly on the shoots that grew the previous summer. Do not then ruthlessly cut back, with the object of forcing spurs, those firm, short jointed growths of the previous year. I may cut a few inches off the ends, leaving them about two-thirds of their original length when the winter pruning is carried out in January. I would ask the reader to note carefully the behaviour of different varieties of Apples in his garden and put into practice the principle that his observation teaches. Irish Peach, for example, is a variety that has the extraordinary habit of bearing one or two fruits at the extreme end of one-year-old shoots, and to shorten these by one-third would often be to sacrifice a good proportion of the crop. Mr. Udall, in his helpful little book about "Fruit Pruning," mentions other Apples that have this peculiarity, namely, Scarlet Codlin, Maiden Blush, The Queen, Grand Duke Constantine, Baumann's Reinette, and the lesser degree, Worcester Pearmain, Ecklinville Seedling, Bismarck, and New Hawthornden. As a rule fruit spurs are naturally produced on the branches of Apple trees, providing the branches are kept well apart, 15 inches apart, and that growths tending to crowd the centre are cut out. If, from the early days of the tree, pruning is directed to cutting out all branches that eventually would block up the centre, a cut is always made just above a bud that points to the outside of the tree, and the branches are kept well apart from each other, and will have been done to ensure a fruitful tree. There have been many wild tales told about Apple tree pruning, but I do not believe an amateur can do better than adopt the customary method of summer and winter pruning, a method that has produced those magnificent specimens in the gardens at Madresfield Court and Cardiff Castle. To mention only two of the many gardens in which similar trees may be seen; they are not only attractive to look at and models of good form, but they bear large crops of fine fruits. Before I attempt to explain the mystery (though it is little shrouded) of summer and winter pruning, let me counsel the reader not to cut back a vigorous shoot with the object of getting rid of it, for he will merely encourage the growth of others just as vigorous. Let him prune the roots instead.

Summer pruning consists in pinching off the points of all shoots that are not needed for the extension of the tree when they have formed four or six leaves, and late July is the time for this. The pruner should always bear in mind the value of young shoots, and if he thinks there is

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here and there should not pinch off the ends of every growth, but let a few of them develop. At the winter pruning such as these are only shortened a few inches. Winter pruning is accomplished by cutting back to within two or three buds of the base all side growths that were "stopped" in summer. The leading growths that extend the tree are cut back to two-thirds of their original length. That, broadly, is the system, and if carried out in association with careful root pruning if the trees begin to make too vigorous growth, then good crops will, I believe, be certain. The Apple tree is largely grown as a standard in orchards; the trees are grafted on the Crab stock, and live long, although comparatively slow in coming into bearing. Trees on the Crab stock are, however, essential for orchard planting, since, if given a good start, they will establish themselves even in meadow land. Bush and pyramid trees for garden cultivation are best on the Broad-leaved Paradise stock; then they begin to bear fruit while quite young. The grower who wants quick returns should see that the trees are grafted on this stock, but they are to be planted only in well tilled land. The Broad-leaved Paradise is a surface-rooting stock; hence the uppermost roots should not be more than 3 or 4 inches below the surface soil. Judge how an annual spring covering of rotted manure helps such trees.

Good dessert Apples, in approximate order of ripening, are these: Irish Peach, American Mother, Allington Pippin, Cox's Orange Pippin, King of the Pippins, Cornish Aromatic, Blenheim Pippin, Margil, Claygate Pearmain, Adam's Pearmain, Rosemary Russet, Baumann's Winter Reinette, Cornish Gilliflower, Court Pendu Plat, Sturmer.

Good cooking Apples, arranged approximately as they come into use, are: Duchess of Oldenburg, Keswick Codlin, Ecklinville, Potts' Seedling, Stirling Castle, Golden Spire, Cox's Pomona, Bismarck, Annie El'abeth, Mère du Ménage, Lane's Prince Albert, Bramley's Seedling, Newtown Wonder, Wellington. Perhaps the very best of these are: Bismarck, Bramley's Seedling and Newtown Wonder.

APRICOT.—The Apricot it would seem is gradually passing out of cultivation, yet it is a delicious fruit, but unfortunately it needs the best position in the garden, namely, a wall facing south, if it is to give of its best. It also needs a well-drained soil with which lime rubble is freely mixed. To plant the Apricot in heavy, ill-drained land is to court failure. No manure should be mixed with the soil at planting time, for, as a rule, the trees grow quite freely enough without it. The Apricot bears fruit chiefly on "spurs" that form on the older branches naturally, and, as a rule, needs little pruning. In fact, to subject the Apricot to severe pruning is often to ruin the trees. The summer growths that form on the main branches are "stopped" beyond the sixth leaf in July, and in winter are further cut back to within two buds of the base. The summer pruning is important, for by preventing excessive growth much cutting in winter is avoided. A young branch may often be trained in full length, being merely shortened a little at the winter pruning; fruit buds eventually

form upon it. Some of the older branches of the Apricot often and may bring about the ruin of a tree. This condition of things is chiefly due to planting in heavy, cold soil, and to hard pruning in winter; thus the grower should endeavour to avoid these. Most successful fruit-growers place great faith in summer pruning and there is no doubt that the practice of "stopping," or pinching the points of the side growths, induces the formation of fruit and prevents much useless growth. Until the tree has filled its allotted space the leading shoots of the Apricot and other fruit trees are allowed to progress at the rate of about 12 inches a year. The leading shoots (those at the ends of the branches) are "stopped" when about 18 inches long in July or August, and in winter are further shortened to within 10 or 12 inches of their point of origin. Moorpark, Hemsley's, Shipley's, and Royal are good varieties. The hardiest Apricot is Br...

BLACKBERRY.—It may seem an odd thing to recommend Blackberry growing in gardens, but those who are familiar with only the hedgerow Blackberries can have no idea of the large, luscious fruit that are obtained from cultivated plants. They need the same treatment as recommended for the Loganberry, and the only point that need exercise the grower's mind is the selection of varieties. There are good and bad Blackberries, and, as with the Loganberry, the bad ones are certainly not worth garden room. A really good form of the Blackberry is scarcely surpassed for delicious flavour, but since there is always the chance of getting an inferior variety, I would advise an amateur to procure those that have the distinction of possessing names of their own. Though it is not always true that plants that have been christened into the flower world are worth growing, it is so with Blackberry. If a choice is made from the following selection the grower can scarcely go wrong; he may, if he choose, have the pleasure of growing white as well as black Blackberries. These, then, are the ones I recommend—Wilson Junior, the Parsley-leaved, Lawton, Lucerne, and the white-fruited variety called Iceberg. Blackberries may be increased in the way recommended for the Loganberry.

BLACK CURRANT.—If there is one quality more than another that should endear the Black Currant to the indifferent fruit grower it is that a moist and not too sunny place makes an ideal home for and suits in every way the needs of this still greatly valued fruit. This recommendation is not lightly to be regarded, for to which other fruit can it be given? And that fairly moist and somewhat shady spot is found without much difficulty in most gardens. Add to this tribute that the Black Currant is a fruit the pruning of which presents no difficulty and it must surely recommend itself to everyone. There is no need to give any elaborate directions for planting, so to say, what is almost a truism, that the soil ought to be well drained and a little rotted manure will not come amiss if it is dug in about 18 inches deep. With the roots well spread out, and the soil made firm about them, and October chosen as the month for planting,

should go merrily as the proverbial marriage bell. What is of much more real concern to the reader is the widespread prevalence of that disastrous insect pest now fairly familiar to gardeners both amateur and professional, namely, the Black Currant Mite, which produces the ominous "big bud." Its presence is easily discerned by the swollen appearance of the buds and, later on, their failure to grow. Let me quote a letter from Col. Bloomfield, in which he gives his experience of this trouble and how he overcame it without sacrificing his plants. It makes good reading:—"I have a fairly large bed of good Black Currant bushes, six or eight years old, that yielded good crops until about three years ago, when they were discovered to be thickly covered with big buds full of the Black Currant Mite. My friends and advisers all said, 'Dig them up and burn them, for they are quite beyond all cure.' I declined, for they were fine bushes that I could not replace under five or six years, and determined to try the simplest of cures, that is, picking off and burning all the big buds. My gardener's boy, twelve or thirteen years old, did not go to school on Saturdays, and to him I entrusted the task. I supplied him with a clear glass bottle with a closely-fitting cork. Every Saturday he went round, and picking all the swollen buds he could find, he put them into the bottle and brought them to me, and I paid him a few pence according to the number of buds in the bottle and the absence of any from the bushes. This he did from autumn until spring, as long as the big buds appeared. The first year's result was a good crop of fine fruit. The next autumn the big buds appeared in much diminished numbers, and were repeatedly picked off as before; and the second year's result was an excellent crop of very fine fruit. The next autumn a few other big buds appeared and were similarly picked off, but they soon ceased to appear, and now there is not a big bud to be seen. The bushes are promising and in excellent health, and there is every prospect of a first-rate crop." The finest fruits of the Black Currant are produced on one-year-old shoots; that is to say, those of the previous year's growth. The best time to prune is as soon as the fruits are gathered, and the way to prune is to cut out old shoots to make room for the fresh ones. If the birds are troublesome, then it may be advisable to defer pruning until early spring, say February, though if the bushes, when moist, are sprinkled with lime the birds will not, as a rule, do much damage. Boskoop Giant, Lee's Prolific and Black Naples are good varieties.

CHERRY.—This favourite fruit prefers above all things a soil that is well drained. If the soil is heavy and clayey, the grower should have it well tilled and such materials as wood ashes, lime and brick rubble mixed in. Lime rubble should be used in any case. The Sweet Cherry is grown as a standard, as a bush, and as a trained tree on walls of any aspect. Planting should be carried out in late October or early November. Clusters of fruit buds form naturally on the stems, but summer pruning of the side or lateral shoots is essential

to obviate the necessity of severe pruning in winter, which is liable to occasion "gumming" in Cherry trees. The Morella Cherry is commonly grown on walls facing north or east. It needs soil similar to that recommended for the Sweet Cherry. The fruits are produced chiefly upon the growths of the previous season. Hence, as for Peach and Nectarine, the pruning, carried out when the fruiting is over, is directed towards cutting out such of the older shoots as can be spared to make room for the fresh ones, which should be trained in to replace them. Growth from spurs must be summer and winter pruned, as explained on page 502. Some excellent Cherries are (early) Early Rivers, Elton, and Frogmore Early Bigarreau; (late season) May Duke, Governor Wood, Knight's Early Black, Bigarreau Napoleon, and Black Tartarian; (late) Emperor Francis and Noble.

RED CURRANT and WHITE CURRANT.—These need similar treatment so may be considered together. They thrive in any ordinary soil that is not especially heavy; but whereas the Black Currant prefers moist, "holding" soil, the Red and White Currant grow best in soil which is well drained and moderately sandy. They are further distinguished from the Black Currant by the fact that the fruits are produced chiefly on "spurs"—short, stunted growths that form the branches. Thus the pruning is directed towards encouraging the formation of these, and is accomplished by pinching out the tips of the summer growths when they have formed six or seven leaves, and in winter cutting them back to within two buds of the base. It is important to keep the branches thinly disposed, otherwise fruit buds will not form, and if there is room a young branch may be trained in. Although Red Currants are usually grown in the form of bushes, they are well suited to training on a wall. In fact, if a few plants are put out against a wall facing west or north, a long succession of fruit may be gathered. They are trained in the form of upright cordons and may have one, two, or three stems, and are sold by nurserymen in these various shapes. The leading shoot is allowed to progress at the rate of about 10 inches annually, until it has reached the top of the wall, and the side growths are treated as recommended for the bushes; that is, they are pinched after having made seven leaves in July, and are cut back to within half an inch or so of the base in winter. Good Red Currants are Raby Castle, La Versailles, Fairy Prolific, and Houghton Castle. White Dutch and Transparent White are good white sorts.

GOOSEBERRY.—The Gooseberry is perhaps the most popular of the bush fruits as, probably, it is the most profitable to grow. It thrives in ordinary, well-dug garden soil, and prefers an open position. In the shade or near high walls it is not at its best. The bushes should be planted in rows at a distance of 5 or 6 feet apart. The fruits of the Gooseberry are produced as in the Red Currant chiefly on side shoots or spurs. These are pinched in July when six or seven leaves have formed, and in January are pruned to within two buds of the

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base. However, fine fruits are also borne on growths of the previous year, and when an opportunity offers and there is room, young growths should be left. In this case, as with the Currant, it is important that the shoots be not crowded—a common test is to leave the branches so far apart that the hand may be thrust through them. Some varieties of Gooseberry are of semi-drooping growth, and if care is not taken in pruning, the lower branches will touch the ground; then, of course, the fruits they bear will be spoilt. The first thing the pruner should do is to remove all branches that are close to the ground, leaving none that are closer than 12 inches. All dead and weakly growths should also be cut out. Then may attention be given to cutting back the side shoots that were "stopped" in summer.

A selection of varieties should include the following:—*Green*: Langley Beauty, Green Gage, and Langley Gage. *Red*: Industry, Ironmonger, Warrington, and Red. *White*: White Champagne and Whitesmith. *Yellow*: Leader and Leveller. Among large Gooseberries the recommended:—*Green*: Thumper, Telegraph, and Mistake, Rifleman, and Speedwell. *White*: Anna and Snowdrop. *Yellow*: Leader and Leveller.

LOGANBERRY.—Among the many berried plants that have been introduced into gardens during the last ten years none is of greater value than the Loganberry, which is the result of a cross between the Blackberry and the Raspberry. It will probably never be popular for eating in the raw state as either of these fruits, because it has a somewhat acid flavour, but for bottling, making into jam, and cooking in tarts it is well worth growing. It is probably surpassed by no hardy fruit in the matter of heavy crops. It has the great advantage of being practically unaffected by bad weather; whatever the spring may be, whether cold and wet, or hot and dry, it never fails to produce a handsome yield. Those who care to do an amount of work while pursuing their gardening work will be interested to know that the Loganberry is the most profitable of the small fruits; especially when late spring frosts have ruined the crops of other kinds. Loganberry may be relied upon to fetch high prices. It is such a hardy plant that, if put in fairly good soil, the chief bother the gardener will have is that of keeping it within bounds. In the southern counties it may be grown even on a wall facing north, but in the northern counties a warmer position is necessary. It is most generally useful, however, for covering rough fences, out-buildings, or for training on poles; it seems, in fact, able and willing to grow almost anywhere. Its needs are so simple that the merest amateur, never having grown it before, should not hesitate to plant it. November is the best time to put it in. As soon as planting is completed the growths should be cut back about half way; in the following March they may be cut to within a foot of the ground. During summer fresh shoots will make rapid progress, and by the end of the season will be at least 6 feet long;

these will fruit the following year. They should not be bunched to a pole, or tied up perpendicularly, but spread out fan-shaped. In the second and subsequent years the question of pruning will demand the attention of the grower, but this is very simple. All one has to do is, as soon as the fruits are gathered, to cut out some of the shoots that produced them. The plants should be put at least 6 feet apart, although this is not really allowing them enough space; a distance of 10 feet between each would not be too much. It is not a bad plan to put them in at 6 feet apart, then in two or three years' time to take out every other one, thus leaving them finally at 12 feet apart. The rate of growth will, of course, as with every other plant, be largely governed by the kind of soil they are planted in. If the soil is poor, it is likely there will be no need to take up any of them at all. Some care is needed in purchasing Loganberry plants; some are raised from seed, others from layers from the parent plant. Now, there are good and bad Loganberries, and among seedlings there are sure to be both. In buying seedlings, then, you run the risk of getting inferior ones, and it is obvious that a bad variety is just as much trouble to grow as a good one; therefore, in ordering, ask for plants that have been raised from layered shoots, for it certainly would not be worth the grower's while to adopt this method of increasing inferior varieties. The amateur may readily increase his stock by pegging down the ends of the current year's growths in the soil in early October. The shoot is slightly notched just where the shoot meets the ground, and the notched part is buried, say a couple of inches. The chances are that the shoot will be sufficiently well rooted by the following April. When the shoot is severed from the parent plant and put out on its own account, if, however, it is not, it will naturally be left until the autumn and transplanted then.

MELON.—The Melon is one of the easiest of all fruits to grow to a point, but the critical time comes when the fruits begin to ripen, for unless the cultivation has been correct the plants are liable to collapse, and then woe betide the fruits. That bane of the Melon grower, the downy mildew, may attack the stem, and if this happens there will be great difficulty in keeping the plant alive long enough for the fruits to ripen. But let me not dishearten the reader. The seeds germinate readily in warmth, and the fruits may be expected to be ripe in about 100 days after sowing the seeds. The orthodox method is to sow the seed in a small flower pot in a greenhouse having a minimum temperature of 60°, covering with glass and shading from sunshine. When the seedlings will show in about a week or ten days, then the little plants need all the sunshine they can have. Melons may either be grown in large flower pots 10 or 12 inches wide or planted out on a prepared bed of soil. The latter is preferable. First a hotbed is made consisting of strawy manure to within about 2 feet of the roof. Then this is placed a double layer of whole turves grass side downwards, and not fresh turves, but those that have been stacked for some months.

and are partially decayed. A little mound of turfy soil is placed at every 4 feet along the bed, and in each mound one of the seedling plants is put out when it is 6 or 8 inches high, when, in fact, it is nicely rooted in the small pot in which the seed was sown. The point is pinched out and two growths are allowed to progress up the trellis that is placed for their support. The little plants must not be put out immediately the hotbed is made up, or they may be spoilt; wait three or four days so that the heat may decline a little. In a warm, moist atmosphere with a minimum temperature of 60°, the plants will make rapid growth and further shoots will form. Some of these will bear male, others female flowers. If no female flowers show the shoots are again "stopped." The latter are distinguished by a tiny fruit at the base. Wait until several female flowers are open at the same time; then in the middle of the day take a male flower and place it upon the female flower so that a "set" of fruit may be obtained. There is usually no difficulty in finding enough male blossoms. The reason the middle of the day is chosen for the process of pollination is because then the pollen is dry and fertilisation is more readily effected. In a few days the female flowers will fade and the small fruits begin to swell. It is then that the precaution of fertilising several blossoms at the same time is seen to be justified, for each of the fruits will swell. If, however, one flower is fertilised one day, another the next, and so on, the second lot do not progress with the first and usually lead to small fruits. When the fruits are growing freely the points of all shoots are pinched out, and any further growths that may arise are also treated similarly. Except when the plants are in bloom and when the fruits begin to colour, a warm, moist atmosphere is essential. The plants need no shade unless during hot sunshine the leaves are seen to droop. One of the most important points the grower has to bear in mind is not to pour water near the stem of the plant, or it may collapse at the ground level from canker. If this happens the only thing to be done is to rub the diseased stem with cement. When the plants are well rooted and growing freely the soil must be kept moist, though when the fruits are ripening rather less is needed. Especially is a drier atmosphere necessary or the fruits may split. Some good melons are Hero of Lockinge, Blenheim Orange, Sutton's A 1, Golden Perfection, and Diamond Jubilee.

Melons in a Frame.—Those who care to grow Melons in a frame should, early in May, make up a hotbed in the frame, having it rather higher at the back than in front, and cover it with a bed of soil as already detailed. Three plants are put out under each glass light at equal distances apart, one towards the top, another towards the front and one in the centre. The point of each plant is pinched out to induce the formation of other growths, and if these do not show female flowers they in turn are "stopped." When blossoms show they are fertilised as explained. Usually three or four fruits only are obtained from one plant. It is necessary to keep the growths fairly thinly

disposed, and this is accomplished by frequently "stopping" the stems and by cutting out a few superfluous ones.

NECTARINE.—I will spare the reader a long disquisition on the merits and demerits of the Nectarine, the rights and wrongs of its cultivation, by asking him to treat it exactly as I have advised for the Peach. Among the best varieties are Cardinal, Early Rivers, Lord Napier, Stanwick Elruge, Violette Hative, Pitmaston Orange, Pine Apple, and Victoria.

PEACH.—Would you have luscious Peaches in your garden? If you live in the north or north midland counties, the trees must have the shelter of a glasshouse. Only in the south and south midland counties can the Peach be grown out of doors with hope of success, and then a warm wall is necessary to its well-doing. I have seen Peaches grown against standards and bushes, but the results were not such as to justify me in recommending this method of cultivation. The wall should be either west or south, although in some particularly warm and sheltered gardens an east wall may be chosen, though, as a rule, it is not advisable. Having selected a suitable place for the trees, the next thing to consider is that prosaic yet very important proceeding, making the border. "Yes, yes; but be quick about it!" I can imagine the reader exclaiming. "We know all about digging, trenching, turfy soil, and all the rest of it, and are anxious to learn something of the art" (for is it not an art?) "of obtaining luscious Peaches for our own table—Peaches such as we see only in big gardens or shop windows." I will skip the unnecessary details, but still must insist on the necessary soil preparation, which, however, is simple enough. The thing to do is to dig a hole about 5 feet wide and 2½ feet deep. Put one layer of broken bricks or tiles in the bottom to serve as drainage, then a layer of whole turves of grass side downwards, and fill the hole with a mixture made up of turfy soil (whole turves, each chopped into about half a dozen pieces) with which half-inch bones and lime rubble have been mixed at the rate of a double handful of each to one barrow-load of soil. The ingredients ought to be first well mixed together, then, as the hole is filled in, tread the soil firmly, though not so firmly as to make it hard. In two or three weeks the Peach tree may be planted.

Planting.—But this, the reader may urge, is an ideal way of planting Peaches. I am prepared to admit that it is, but I would not say that in this case, at least, there is no other. One plants a Peach tree for a generation, and it is obvious that to plant it badly is to store up much disappointment for future days. Do not, I pray you, just dig a hole in the border and plant the Peach tree in it as you would plant a Wallflower. Unless the gods are very good there will be no flowers on that wall, and if, as is most likely, that imp of mischief in whose train lurks misfortune should turn up when least expected, then it will be a sorry day for the Peaches that were planted in haphazard fashion. As to the actual planting of the tree there is not really much to tell; the chief points to remember are to dig out enough of the new soil to allow all roots

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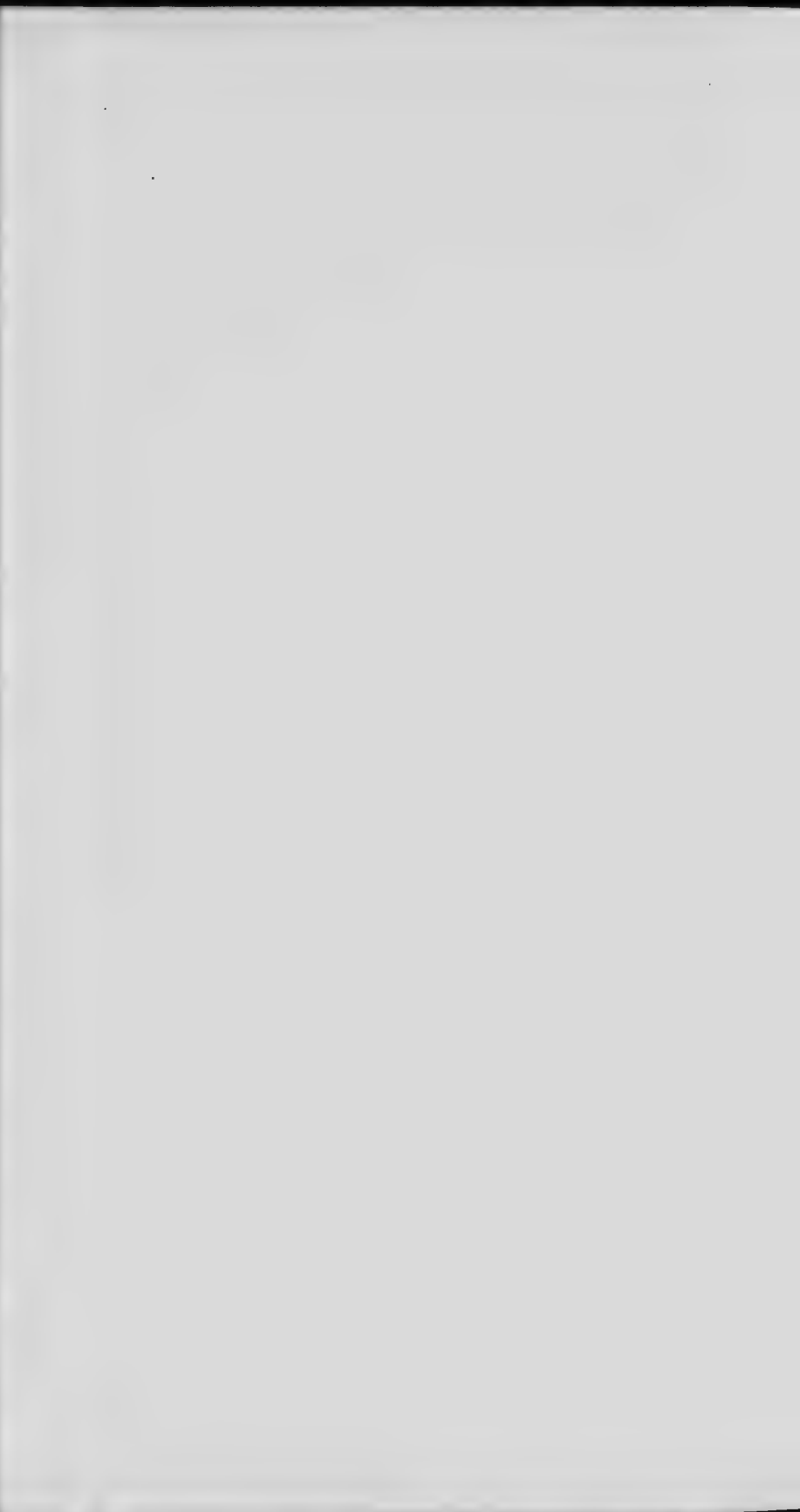
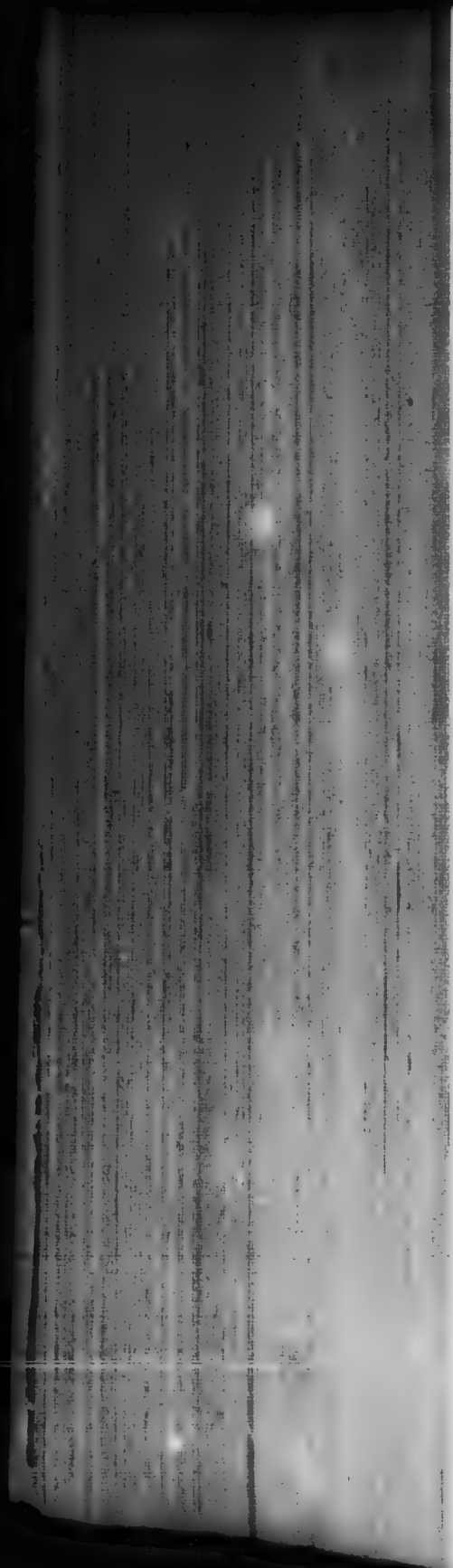
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to be spread out to their full extent, to plant at such a depth that the upper roots are covered with 3 or 4 inches of soil, and to make the soil firm by treading. Then, providing you attach the tree only lightly to the wall until the soil has settled to its normal level, the future may be faced with assurance. Amateurs rarely plant their trees and plants firmly enough, and the result so far as fruit trees are concerned is seen in long-jointed, soft growths that do not mature well. And as the veriest tyro in fruit growing will tell you, unless the "wood" (which means not the spinney of the forest, but the Peach growths) is well ripened, the fruit buds will be few and far between.

When shall we plant? Ah! yes; that is what every amateur wants to know, and more often than not it is just what the professional forgets to tell him. October and November are the best months for planting Peaches, and October is, perhaps, the better of the two. If, however, through one of those many causes of which writers have no cognisance, this is not practicable, then choose a nice warm day at the end of March. Even then, I am afraid, the Peach grower's trials are not over, for unless his experience is different from that of most other people, the tree will make vigorous growth the first two or three years, and, alas! will strike a balance very much on the wrong side by not producing any flowers. The amateur is in despair. What shall he do? That balance must be levelled up. And it can only be done by getting at the roots of the tree, cutting back those thick ones that are sure to be found, lifting the tree a few inches higher in the soil, and if any roots are seen to be going straight down to the subsoil, they are to be shortened and laid out straight. The whole object of this gardening operation is to check the growth of the gross roots that lead to gross shoots, and to keep all roots, both big and little, near the surface. Some growers make a practice of lifting and root pruning all young Peach trees each autumn for two or three years after planting, so as to force them to form small, fibrous roots, for these alone ensure plenty of fruit buds. It is much better for the amateur to buy a tree with several branches than to start with a "maiden" or quite young plant. The former will yield fruit probably the first season after planting, while for two or three years the latter has to "grow on"—which it may preferably do in the nursery.

Pruning is a simple enough matter, if the grower realises that the fruit is produced almost exclusively by one-year-old growths; in other words, by those that grew the previous summer. Perhaps the best time to carry out pruning is in autumn, after the fruit is gathered and before the leaves fall. While the foliage is still on the trees it is easier to judge how many shoots may be left without overcrowding. The growths that one cuts out are those that have produced fruits, and the growths to leave in are those of the current season. The shoots that arise from the main branches have a short life, though it may be said to be a merry one. They grow one summer, they bear fruit the next, and in the autumn of the second year they are cut out.

Disbudding.—When growth begins in spring it will be not that numerous little green shoots as well as flower buds make appearance. If all these were allowed to develop the tree would become crowded with useless growths or, as the gardener has "wood," so some of them have to go. Only two or three on a branch are allowed to grow to their full length; whether two or three must be decided by the grower with an eye to the space at disposal. At any rate, one of these new growths must be at the top of the shoot and one at the bottom, or as near to the top and bottom as they are to be found. If there is room for a third, then this should be chosen about half-way between the other two. Let disbudding be completed, say, in three weeks.

When cutting back a shoot or growth of a Peach tree (and at autumn pruning it is wise to shorten weak shoots by about one-third) care is necessary to cut just above one of those small pointed buds that will, when growth starts in spring, produce leaves. All blossom buds that have not a leaf bud above them will die. Let me not conclude with this alarming note, since those readers who prefer to look at the last page of a book or the last word of a paragraph before reading it through may be discouraged. Rather would I finish by saying that if the selected shoots are nailed in about midsummer, and side shoots that arise from them are cut off, then there should be plenty of Peaches if the trees are well supplied with water from April onwards and only one fruit is allowed to each square foot of space. Occasional watering, say once a fortnight, with diluted liquid manure from the farmyard works wonders, but a weekly sprinkling of artificial manure does, perhaps, as well. Good varieties, in approximate order of ripening, are Waterloo, Early Rivers, Hale's Early, Early Goodrich, Mignonne, Royal George, Noblesse, Grosse Mignonne, Crimson Galand, Stirling Castle, Sea Eagle.

PEAR.—Much of what I have written about the Apple holds good with regard to the Pear. This makes a fine orchard tree when grafted on the Pear stock, and is then grown in standard form. But for cultivation in well tilled garden ground, bush and pyramid trees on the Quince stock should be obtained. They have the same virtues as dwarf Apple trees on the Paradise stock. The Pear is even more amenable to the summer and winter pruning method already described than the Apple; each branch of a well grown tree becomes a mass of fruit spurs. These form naturally in greater numbers on the Pear than on the Apple, and the close pruning that is occasioned by pinching off the points of the growing shoots in July, and shortening these within two or three buds of the base in January, suits admirably. I do not think I shall ever see finer Pear trees, that blossomed and fruited more abundantly, than those grown by the late Mr. Norman, head gardener at Hatfield, and the method of pruning now advocated is the one that was practised there.

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PEAR DOYENNÉ DU COMICE (RIPE IN NOVEMBER), ONE OF
 THE MOST DELICIOUS VARIETIES. (HALF NATURAL SIZE.)



PEAR PITMASTON DUCHESS, RIPE IN OCTOBER, OF FAIRLY
 GOOD FLAVOUR. (HALF NATURAL SIZE.)

RASPBERRY

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Jargonelle, Williams' Bon Chrétien, Clapp's Favourite, Beurré Hardy, Louise Bonne de Jersey, Doyenné du Comice, Marie Louise, Thompson's, Hacon's Incomparable, Winter Nelis, Glou Morceau, Josephine de Malines, Bergamotte Esperen.

PLUM.—The Plum has much in common with the Peach and Nectarine, so far as its cultivation is concerned. It likes the same kind of soil, lime rubble being a most important constituent, on no account to be forgotten, and the directions as to soil preparation and planting hold good. So, too, does the advice as to lifting and root pruning when gross shoots indicate the presence of gross roots. Where the Plum does differ largely from the Peach and Nectarine is in the manner of producing its fruits. They are chiefly borne on spurs—little, stunted side growths that appear on the branches; the fruits are, however, also produced by one-year-old growths, and when there is room these should be nailed in. Most of the pruning needed by the Plum may be carried out in July, and it consists in pinching out (above the sixth leaf) the points of all shoots that are not wanted for the extension of the tree, or for nailing in to fill vacant spaces. At the winter pruning in January, the shoots so shortened in summer are cut back to within two or three buds of the base; the others are left at two-thirds of their original length. If, with an eye to the value of the one-year-old shoots, the grower nails them in where there is room, checks gross growth by timely root pruning, summer prunes as advised and further prunes in winter, he should meet with success. When the spurs become long and unsightly they need shortening, and this is done in winter. However, the amateur should dispense as much as possible with winter pruning, and regulate the growth by "stopping" the green shoots in summer. It is far better to check a vigorous growth by pinching off its point and all subsequent growth in summer than it is to cut it back in winter. Fruit trees grown on walls are prone to grow more vigorously at the top than at the bottom; the balance of growth may be restored by allowing the lower shoots to develop more freely than the upper ones; keep these short by constant "stopping." The Plum thrives as a standard or pyramid or bush in the open garden and on any wall, though the finest fruits are those from south and west aspects. In pruning the trees in the open, the branches need to be kept thinly disposed, say 12 inches apart, so that all parts may be exposed to sun and air. Summer pruning plays an important part in their cultivation, and this, together with winter pruning, is carried out as already directed. Some delicious August Plums are Denniston's Superb, Green Gage, and Bullin's Golden Gage. The best of those ripe in September are Braxton Gage, Transparent Gage, Jefferson, Kirke's, Reine Claude de Bavay, while Coe's Golden Drop is excellent even in October. Good cooking sorts are Early Prolific, Belgian Purple, Czar, Goliath, Monarch, Pershore, and Victoria.

RASPBERRY.—The Raspberry is deservedly a favourite fruit for small gardens, and the only thing to be said against it, or rather the

only thing that might deter the slipshod gardener from growing is the fact that it only pays for room when given good cultivation. It needs deep, well dug, rather moist soil, never yielding satisfactory crops on light, badly tilled ground. It has a gross appetite, appreciates plenty of rotted manure dug into the soil about 12 inches below the surface. The Raspberry is chiefly a surface-rooting plant and it may seem contradictory to recommend a deep soil, but the value of this will be appreciated during hot, dry weather, for the roots will be kept cool and moist. Perhaps the best time of planting is in October, although the roots may be put in any time in the winter, when the ground is fairly dry and the weather mild. Early planting is strongly to be recommended. There are two commonly practised ways of growing the Raspberry—in a clump, or the growths trained fan-shaped on wires. Either is good, but the former has the advantage of giving the least trouble. Only one plant is needed for each clump, the growths being loosely tied up to it, while by the other method one has to go to the trouble of erecting a wire trellis. There is no doubt finer fruits are obtained by the latter plan, as would naturally be expected, for the growths are thoroughly exposed to sun and air and become well matured. However, if the berries grown in clumps are kept well thinned out and are not packed up tightly, the grower will have little to complain of. It is most convenient to have the clumps in rows, and the usual distance between each row is 5 feet, and between each clump in the row 3 feet. Plants put in singly and trained on a wire trellis are placed at a distance of 3 feet apart. Providing the amateur plants his Raspberries in the ground and realises the simple fact that the finest fruits are produced on one-year-old growths he should find little difficulty in their cultivation. As soon as planting is finished cut back the shoots to half-way, and in the March following further shorten them to 6 inches of the ground; this will result in the development of a number of vigorous shoots, of which only some half dozen should be allowed to remain. Only strong shoots are likely to give good crops the next year. In the case of plants grown against wires there will be many more shoots, and they may be trained at a distance of 6 or 8 inches apart all over the wires; there will be no fruit the first year, but if good growth is made the canes will fruit freely the second year. There will be no further pruning to do the first season after planting, but in the next and succeeding years the old growths, or, at any rate, as many as can be replaced by young shoots, should be cut out. Let the aim be at having his plants full of one-year-old shoots, then there will be no anxiety about the crop of fruit. "Cut out the old, train the new" should be the Raspberry grower's motto. It goes without saying that, as the Raspberry is chiefly a surface rooting plant, it appreciates a mulch of rotted manure about the stems in early summer, and in just beneath the soil. If the grower keeps the ground well in summer and takes care not to dig amongst the clumps in winter

from growing it, good cultivation. giving satisfactory results, and good appetite, and about 12 inches of soil-rooting plant, deep soil, but the other, for then the at time of all to any time during either mild. Still, there are two com- a clump, or with is good, but the

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Let the grower e, then there will e old, train in the es without saying ant, it appreciates mmer, and forked ground well hood clumps in winter,

STRAWBERRY

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although the soil may be forked over, he should have no difficulty in growing good Raspberries. It is a good plan in winter slightly to shorten the new growths that are being retained for fruiting the following year.

Autumn Raspberries.—Those who care to have Raspberries in autumn may indulge their fancy if they choose the right varieties and treat them correctly. One of the best red-fruited varieties is called Belle de Fontenay, while an excellent yellow is found in October Yellow. It will be readily seen that autumn-fruited Raspberries need different treatment from those that fruit in summer, for while the latter yield their fruits on growths that form in the previous summer, the autumn-fruited varieties produce their crops on the current season's growth. Not only the method but the time of pruning is thus changed; the growths are cut down in early spring so that fresh, vigorous shoots may form, for it is only such as these that will give satisfactory autumn crops. The Raspberry is one of the simplest of all fruits to increase; one has only to transplant in autumn some of the growths that spring up around the parent plant and place them where a fresh plantation is needed. There, if well looked after and liberally treated, they will soon develop into fruiting plants. Among the best Raspberries are Superlative, Carter's Prolific, Baumforth's Seedling, Hornet, and Norwich Wonder. Yellow Antwerp is a good yellow sort. October Red and October Yellow are autumn-fruited varieties.

STRAWBERRY.—The great thing in growing Strawberries is to look well ahead and to make early preparation for the next year's crop. Some growers treat Strawberry plants as annuals; that is to say, they pull them up after they have borne one crop of fruit. Most people take two crops of fruit before destroying the plants, others leave them for the third season. Perhaps the best of these methods is to grow plants for two years only; the third year's crop of fruit is usually abundant, but the fruits are small. They are, however, most useful for preserving. Those who grow Strawberries as annuals are usually favoured with every convenience, and this is a method that is scarcely likely to appeal to the amateur grower, since "runners" are taken from plants grown especially for that purpose early in the season, and are planted out early in August where the plants are to fruit the following year. They then have every opportunity of making fine plants by the following summer, and may be expected to bear a good crop of the finest fruits. The constant succession of good quality Strawberries can only be kept up by preparing a fresh stock of young plants every year, since the Strawberry is at its best under ordinary cultivation in its second year. However, this is not to say that those who make a fresh plantation only every second year will not have good results. A method that is strongl y recommended is this: Plant in September in rows 18 inches apart, putting each plant 9 inches from its neighbour. There will be a fair crop from each plant the following season, but if all the plants were allowed to remain for another

year they would be much too crowded. The plan adopted, then, is to dig out every other plant in the rows—this will leave the remaining plants at 18 inches apart, which is sufficient distance to allow them to grow. They may then be left either one or two more seasons, if the cultivator desires, but it is really best to dig them up after the first year, to bear two crops of fruit, and make a fresh plantation of young plants.

Strawberries are most easily increased; in fact, they increase themselves by means of "runners." Little plants are formed at the ends of long stalk-like growths that originate from the parent plant in the summer. If the surrounding soil is forked up the runners may be pegged down in this, although the best way to insert them is in pots filled with soil and placed conveniently round the parent plant. They are easily made firm by means of small wooden pegs placed in the soil at the end of the stalk-like growth just behind the little plant. If the soil is moist the runners will be well rooted in about a month, and may then either be placed in pots for growing in a greenhouse, or used for making a fresh plantation out of doors.

Probably no crop better repays the gardener for good cultivation than the Strawberry, which is not successful on light, dry soil. The soil should be heavily dressed with rotted farmyard manure dug in to the depth of 12 inches deep. A fairly heavy soil suits them best; it should be prepared by digging and manuring. Planting should be completed by the third week in September, for then the plants have a better chance of becoming well established before the winter. If the runners are layered, say late in July, the plants will be ready for their permanent quarters in early September, and the planting is a great aid to success. During spring the soil between the rows should be frequently hoed, so as to keep down weeds and keep the surface loose. It is often said that the hoe is the gardener's best friend, and in Strawberry growing it is certainly a great aid to the production of fine crops. Strawberries bloom in May and their flowers are often damaged by late frosts with the result that the quantity of fruits may be seriously diminished. When the Strawberry plant is small it is well worth while to protect the flowers by shaking a layer of dry straw lightly over them; this can readily be removed in the morning and put on again at night when frost threatens. It may make a great difference between a scanty and a full crop of fruits. Strawberries, when ripening, are liable to be spoilt by soil splashed up during heavy rains, and some precaution is necessary. The simplest way of keeping the fruits clean and undamaged is to support each bunch by means of a forked stick, thus raising the Strawberries several inches above the ground. Clean straw is often spread between the plants with the same object.

Excellent varieties are Royal Sovereign, Sir Joseph Paxton's Prolific, basket, Louis Gauthier, British Queen, Leader, Monarch, Sir Robert Napier, The Countess, and, of late sorts, Waterloo, Latest of the Frogmore Late Pine. St. Antoine de Padoue and St. Joseph.

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VINE

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petual fruiting sorts, and if the flowers are picked off in summer will give crops in September.

VINE.—The Grape Vine is hardy; it may be grown with success in a cold, unheated greenhouse when grapes are not wanted until August or September. Earlier fruit is only to be obtained with the aid of artificial heat. Let us first consider the practical details of cultivation, since many are the same whether the Vine is in a heated glass-house or in a cold one. Vines for sale are grown by nurserymen in pots; they are usually sold when one year or two years old. The former are known as "planting," the latter as "fruiting" canes. The planting canes (costing about 3s. each) will bear no fruit the first year, while the fruiting canes (costing about 10s. 6d.) will give a small crop the first season. The Vines may be planted in autumn, in March, in June or July. Perhaps the best plan for the inexperienced grower is to prepare the border in autumn, and to obtain the Vine in March and plant it then. The preparation of the border is one of the most important of the several chief items in grape growing; to plant the Vine in ill-prepared soil is certainly to court failure or indifferent results. Grapes that "shank," shrivel and fail to colour properly, are usually traceable to a faulty border. It should be 3 feet deep; 6 inches depth of broken bricks form the foundation, then come two rows of turves placed grass side downwards. The remainder is made up of specially prepared soil of which the staple should be turves, each cut into about six pieces with a spade. This is commonly designated "turf loam." It is not advisable to use freshly cut turves, but those that have been stacked twelve months, preferably with a few layers of farmyard manure interposed. To every barrowful of "turf loam" add one-fifth part of horse droppings, one-fifth of lime rubble and one-fifth wood ashes, and a good sprinkling of half-inch bones. All these ingredients should be thoroughly mixed before the border is made up. This soil mixture and preparation may be said to constitute an ideal Vine border, and if made up in autumn and trodden firm but not hard when prepared, the Vines planted in March will start under the best auspices. Most growers agree that a border 4 feet wide is large enough to start with; more soil may be added as becomes necessary, say every two years, until the space available is filled.

There is the question of inside *versus* outside borders. Either is suitable for Vines that are to bear grapes in late summer, but for early grapes an indoor border is preferable. The front walls of Vineries are made with large openings or arches when there is an inside as well as an outside border, so that the roots may penetrate both. When the sub-soil is clayey the question of drainage needs consideration, and small drain pipes placed at right angles to the front wall of the Vinery and connecting with a larger drain may be necessary. In any case the inside border should slope slightly towards the front of the Vinery, and the outside border away from it. While generally it may be said that a border prepared in this fashion is necessary to the production of good and

constant crops of grapes for many years, it is nevertheless true that excellent grapes are grown without such elaborate border preparation. But this is, of course, only when the natural soil happens to be suitable where it is good, rich loam, 2 or 3 feet deep. Vines live for many years under good cultivation (witness those at Hampton Court, Cumberland Lodge, Windsor, both considerably over 100 years old) so that it is worth while to give them a good start, and the initial dressing is almost the only one. Every other year it is advisable to remove a few inches of the surface soil and replace with a rich top dressing of turfy loam, horse manure, and half-inch bones in the proportion already advised, for when in full growth the Vine needs copious supplies of water, and the surface soil is apt to get sour. It is an excellent plan to have strong, open trellis paths here and there on the borders to obviate the necessity of treading on the soil.

Planting.—There is not much to tell about the planting. The Vine will, of course, be taken out to damage the roots when taking the plant out of the flower-pot. The crocks are removed and the chief roots, if matted, must be disentangled, so that they may be spread out. It is not a bad plan to soak the Vine until a good deal of the soil falls away, then the roots may be spread out evenly and freely. I have known Vines crippled in growth when planted just as turned out of the flower-pot; there is the danger that the "ball" may get dry and remain so, and the roots perish. In any case, whether most of the soil is taken away or not, the Vine must be soaked thoroughly a few hours before planting. Make the soil firm about the roots, and cover the roots with only about 2 inches of soil. Leave a shallow depression about the stem so that water subsequently given shall reach the roots and not trickle away from them. An average distance to a cane between the Vines is 3 feet. If a planting cane is put in, cut it to within 12 or 18 inches of the base when planted in March. (If planted in June the Vine will, of course, be in full growth, and must not be cut at all. In this case the roots are disturbed as little as possible.) Several buds will start into growth, but only one (that at the apex, if it grows away strongly) is allowed to remain. The others are rubbed off. By the end of the summer the young shoot will be, or should be, quite 6 feet long. It will then be in the same condition as the "fruiting cane" bought from the nurseryman, except, of course, that the latter will be in a large flower-pot.

The Pruning of the Vine is as simple as A B C—the two chief things to know are that the main stem of the young Vine should be allowed to progress at the rate of only 2 to 3 feet annually up the roof, and that the fruit is produced by the green shoots, those of the current season's growth. In January the main stem is cut back to within 2 to 3 feet of the base of the previous year's growth—it is to say, if the Vine grew 6 feet, cut away 3 or 4 feet. One may leave it 3 feet longer every winter until in time the top of the roof is reached. By leaving more than 3 feet of annual growth there is a danger

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blank spaces arising where there ought to be lateral shoots, or, as they eventually become, "spurs." They should not be closer together on the same side of the stem than 15 or 18 inches. They should alternate with and not be opposite to each other. On 15 or 18 inches of stem there will thus be two lateral growths, one on each side of the former. It is not, of course, possible to get the lateral shoots exactly this distance apart, but the particulars given will serve as a guide to the uninitiated. Any intermediate growths are rubbed off. During the summer the lateral shoots make quick progress, and the point of each is pinched out at two leaves beyond the bunch; if no bunch shows, then the shoot is stopped beyond the fifth leaf. Subsequent or "sublateral" growths, as they are called, are "stopped" when they have made one or two leaves. In the January following each of the lateral growths is cut back to within two buds of the base. When these buds start into growth, that which contains a bunch is allowed to grow, the other is rubbed off. If neither has a bunch, then the weaker of the two is dispensed with. And so the same process of "stopping" the green shoot at two leaves beyond the bunch in summer, cutting it back to two buds in January, is gone through as the seasons come round. Thus we see how very simple a matter Vine pruning really is. The details of treatment from the time the Vine starts into growth until the grapes are gathered are important, but they are easily comprehended. Six months are necessary to produce ripe grapes, unless the Vines are hard forced. Thus Vines starting into growth naturally, as they do in March, produce ripe fruit in August. Vines started in January will, if suitable temperatures are kept up, give ripe grapes in late May and June.

From the time the Vines start into growth until the bunches come into bloom a moist atmosphere is essential. This is provided by syringing the Vines and the house generally several times a day. It is a safe plan to open the ventilator slightly when the thermometer registers 10° above the minimum night temperature, and to increase the admission of air gradually up to mid-day, and to decrease it gradually in the afternoon, closing the vinery finally before the sun ceases to shine on the roof. Thus in early spring the vinery would be closed, say at 1 p.m. or 2 p.m., while in the summer it might not be shut until 4 p.m. or later. While the Vines are in bloom, more air and less moisture are necessary, so that the pollen of the flowers may be dry and easily dispersed; thus a good "set" is secured. When the flowering is over the little bunches will grow rapidly, and growth is encouraged by moisture and by "early closing." If the house is closed before the sunshine is off the roof and plenty of water syringed about the walls and floor, such an atmosphere as the gardener terms "genial" or "growing" arises, and this makes for rapid growth. When the grapes are rather larger than Peas the stoning period is reached. The bunches apparently cease to develop for two or three weeks, and care is then necessary not to "force" them by an unduly high temperature.

After the "stoning" time is over all is plain sailing. A more warm atmosphere, with a fair amount of fresh air during the day, are the chief things to provide. The border must, of course, always be kept moist, not by continual watering, but by a soaking whenever it appears to be getting rather dry. To let the roots suffer for want of water is fatal to success.

Thinning the grapes is interesting work, although until one is accustomed to it, it is rather trying. The left hand holds a small forked stick by which the stem of the bunch is secured; with scissors in the right hand the worker removes, first of all, the small seedling berries, then those that are ill placed and crowded. About half an inch is an average space to allow between each berry, when thinning is finished, in the case of such favourite sorts as Black Hamburgh, Buckland Sweetwater, Alicante and others. For the smaller berry sorts, such as Frontignan, Muscadine and others, rather less space is necessary. When the grapes begin to colour, less moisture and more air are required; as the colour deepens, cease moistening the vine, or the grapes may split. Give also still more air until by the time the grapes are ripe the ventilators are left open night and day. Then until the vinery is again started into growth, the ventilators should not be closed; the Vines must have all the fresh air possible, so that the growth may be well matured.

There are many varieties of grapes, although only a few are commonly grown. Black Hamburgh is perhaps the most easily cultivated of all the large berried sorts, and is well suited to cultivation in the amateur's greenhouse. Alicante (black), too, is to be commended. Foster's Seedling, Buckland Sweetwater (both white or yellow varieties) are other useful and easily suited grapes. Those that are not suitable for the amateur's greenhouse and should be attempted only in heated vineries are: that of Alexandria (the king of grapes, yellow), Madresfield Cou. (white), Alnwick Seedling (black), Mrs. Pince's Black Muscat, Apollo Towers (black), and Lady Downe's (a late black grape that may be kept until spring). The latter grape is usually allowed to start into growth naturally, without fire heat, the bunches ripening in late summer. It is, however, not an easy grape to grow.

Some Pitfalls.—When the lateral shoots are 8 or 10 inches long it becomes necessary to tie them down from the roof glass to the trellis or wires provided for that purpose. In doing so it is the simplest thing in the world to break them off at the point of origin. Only the end should be tied gently down at first, then a few days later the shoot may be brought away from the glass much more easily. But at all times great care is necessary or the shoot will break off. In thinning the bunches be careful not to injure the berries that are left by sticking the scissors into them, for each disfigurement then will prove a blemish when the grapes are ripe. Lady Downe's grape has an unusually thin skin, and is, therefore, especially liable to be "scalded"—i.e. the skin is scarred as though burnt. It is caused by the sun shining

on the berries while they are moist. All grapes are liable to be "scalded" if the ventilation is faulty. When the vinery is closed during the night both leaves and berries are, as it were, bathed in dew early in the morning from moisture that has settled on them. The sun shining on them through the glass while thus moist may scald them, and a scalded grape is permanently disfigured. The remedy is to leave the top ventilators open for an inch or two throughout the night so that the moisture may disperse. It is during June and July that scalding is most likely to occur.

The question of ventilation is important. Air should never be admitted with the object of lowering the temperature, but to prevent it rising too high; therefore, it should be admitted in gradually increasing amount after an early start. From May onward a little air will probably be necessary before breakfast, otherwise the temperature would rise too quickly. It is only by giving a little air early and gradually increasing the amount that extremes of temperature are avoided. In spring, when hot sunshine and cold winds prevail, air should be admitted with great caution. If no air is given the temperature will quickly rise too high, and if admitted carelessly the foliage may be injured and growth receive a check. The question of ventilation is chiefly important in connection with grape growing in heated vineries. When, as in the small greenhouse, the Vines are allowed to start naturally into growth, the best plan is to leave the top ventilator partly open all night in summer, while during the day air can be freely admitted first thing in the morning, and the ventilators left wide open until the evening.

The malady that causes most trouble to inexperienced growers is that known as "shanking." The stalks of the berries shrivel, and sometimes the greater part of the bunch is affected and thus spoilt. The fault usually lies at the roots; an ill-drained border or sour soil is often responsible. The remedy lies in removing the unsuitable soil and in providing adequate drainage.

It is best to cut the grapes when they are ripe if a room is available in which to keep them; then the vinery or greenhouse can be thrown wide open, so that the Vines may receive all the fresh air possible. The simplest method of preserving grapes in good condition is that of placing the cut stems, bearing the bunches, in bottles of water in a semi-dark, cool room. One that faces north is most suitable, since the temperature there is not likely to fluctuate much. At least 4 or 5 inches of stem must be cut with each bunch, so that when the former is inserted in the bottle the fruit will hang clear. The bottles are fixed at an angle of about 30°; the front ledge of the shelf is grooved to take the top of the bottle, the neck of the latter protruding. A temperature of 40° is most suitable for the preservation of the grapes. The bottles are filled with water, and it is recommended to place a few lumps of charcoal in each to keep the water "sweet." In some cases it may be difficult to cut sufficient growth below the bunch for insertion in

the bottle. When this difficulty arises, growth above the bunch may be used, as it does not make much difference which end is placed in the bottle. It is, however, usual to cut 5 or 6 inches below the buds and 2 or 3 above it, inserting the lower part in the bottle. The late keeping grapes are Lady Downe's Seedling, Mrs. Pince, Alicante. These may be kept in good condition throughout the winter. Black Hamburgh, Foster's Seedling, and Buckland Sweetwater will keep long. Madresfield Court and Muscat of Alexandria may be kept until Christmas. Cannon Hall Muscat is a handsome late white grape largely grown for the market.

The Vine is easily increased by means of dormant buds or "eyes" as they are commonly called. The best time to prepare these is in January, and some heat is necessary. If a heated vinery or greenhouse is not available, it is possible to make the buds root in spring under a bell-glass or cloche in a cold greenhouse. If it is necessary to retard some buds for this purpose (although in an unheated vinery they are usually available as late as March), the best plan is to cut off a shoot, 18 inches or 2 feet long, and place it in a bottle of water in a cool place. Each bud is cut so that there is half an inch of "wood" or growth on each side of it. Cut each end slantingly, and remove quite a thin slice from the base beneath the actual bud. Fill small pots (2½ inches in diameter) with turfy soil with which sand has been freely mixed, and press in each bud firmly, so that only the "eye" shows above the surface. If the pots are plunged in a hot bed made up several days previously of leaves and manure, and covered with hand light, they will soon form roots. In fact, they will root readily enough if the pots are placed in a glass-covered box in a warm greenhouse. When rooted they are gradually given air, potted off when the roots are plentiful, and "grown on" for whatever purpose is necessary.

Grafting.—This is a method of increase largely made use of by nurserymen to effect an increase of stock of certain plants. It is most useful to the amateur in connection with fruit-tree growing. If the garden contains a worthless Apple, Pear, or Plum tree, this may be cut down and scions or grafts from a good variety of the same kind grafted upon it. The best time for grafting is about the middle of March when the growth is about to commence, for then union of stock and scion takes place more readily. Two chief points to observe are, in January, to cut down the branches of the tree to be grafted, and in the same month to cut the scions or grafts from the trees it is wished to perpetuate and partly bury them in the ground on a shady border. There are various methods of grafting, and the size of the stock usually determines the method to be followed. When both stock and scion are about the same

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size, tongue or whip grafting is practised. The stock is cut in a slanting direction, and the scion is cut to match, so that when the latter is attached to the former, they may fit closely. If the stock is of greater width than the scion, as is often the case, it is most important that the scion be made to coincide exactly with the stock on one side, for the success of grafting is wholly dependent upon the union of the cambium layer, or growing tissue (that lies beneath the inner bark), of the scion with that of the stock. Thus care is necessary to see that the bark of the scion exactly fits over that of the stock. In cutting down old trees it is usual to leave about 9 inches

of each branch upon which to insert the grafts, the latter being 9 or 10 inches long. Crown and cleft grafting are employed when the stock is an old tree with thick branches. In crown grafting the scion is inserted beneath the bark of the old branch at intervals around it. The bark

is slit longitudinally, the scion is cut slantingly so that it may be pushed down behind the bark, the latter meanwhile being pressed forward with the haft of a budding knife or some other thin instrument. It is usual to make a small notch at the top of the slanting cut so that it may fit on the top of the stock. In cleft grafting the scions are inserted in a cleft in the stock, as shown in the illustration, care being taken to place each scion at the edge. The grafts or scions are made fast in position by being tied with raffia, then grafting wax or clay is used to cover the top of the stock and the base of the grafts, so that air is altogether excluded. The clay must be kept moist, or it will crack, and any crevices that appear in the wax must be filled.



Crown Grafting.

A. Scion into position with broad strips of matting.
B. Scion and stock waxed.

CHAPTER XXXVII

FRUIT UNDER GLASS

CHERRIES may be grown successfully in a cool glasshouse, but not possible to force them by the application of heat. They may be grown in pots or be planted in a border. The house in which they are grown should be light and airy, with sufficient hot-water pipes to exclude frost in early spring. When the trees are in flower the house is kept fairly dry, and the trees shaken lightly each day to assist pollination. After the fruit has been gathered all the plants in pots must be stood out of doors in full sun, so that the growths may become thoroughly ripened. Repotting may be done in autumn, taking care to remove as much as possible of the old soil without injuring the roots. The pots in each case must be well crocked, and nothing but the best soil used. Good turfy loam should form the basis of the compost, with the addition of bone dust, old mortar rubble, and a little sand. Any pruning which may be necessary ought to be done during summer whilst the growths are young, in order that the plants may not lose energy by maturing needless shoots. The trees may be started into growth in January or February by keeping the house somewhat closer, and by syringing the branches two or three times a day. The night temperature should, for the first few weeks, be 40 degrees, and may be gradually increased when fruits are "set."

EGG PLANTS.—The Aubergine of France (*Solanum Melongena*, botanists) is sometimes grown in this country for the sake of its fruit. Seeds are sown in February and the young plants are potted singly as soon as large enough to handle. When the first pots are moderately well filled with roots, the plants may be transferred to those 5 or 6 inches wide; another shift into 7-inch flower-pots will serve to mature the fruits. A suitable compost may be made up of three parts turfy loam, one part well-rotted manure, such as is obtained from an old hot-house, and half a part each of leaf mould and sand. A sunny greenhouse forms a suitable place for cultural purposes.

FIGS.—The cultivation of Figs under glass is practised in two ways. In one case the plants are grown in pots and are placed out of doors after the crop is gathered; in the other case the trees are planted in a prepared border in the glasshouse. Both methods give good results, but, of course, much larger trees with correspondingly heavier crops may be obtained by the planting-out system. Turfy soil containing plenty of grit is essential, whilst a thorough drainage system is necessary; though Figs require an abundant supply of water throughout the season.

the growing season, they strongly object to stagnant moisture at the root. A somewhat confined root run is preferable to an unlimited area, for in the latter case the plants are liable to make a lot of useless, gross growth which does not mature well. A top-dressing of well-rotted manure is beneficial in spring. From the time the plants are started into growth in spring until the fruits begin to ripen, they must be well syringed twice a day and the paths and walls kept moist, for in a dry atmosphere Figs are very liable to be attacked by red spider. Very good Figs may be grown in houses without artificial heat, and in no case is it wise to subject them to a very high temperature. The first crop of Figs is produced on the old growths, and, under glass, a second crop matures on the young shoots. Any young shoots not wanted for training in to extend the tree are stopped at the sixth leaf. Propagation is usually effected by means of cuttings of ripened wood in spring. Good varieties are Brown Turkey, St. John's, White Mar-seilles, and Negro Largo.

PEACH AND NECTARINE.—These fruits have so much in common that they may well be taken together. In most gardens they are planted in prepared beds in houses, and the branches trained to trellises a foot or so beneath the glass, and in the case of lean-to houses the back wall may be covered also, although there the trees are less successful. They are also grown in pots in the same way that Plums, Cherries, etc., often are. When preparing beds for these trees ample drainage is necessary, although the trees must not be allowed to become dry at the roots after they have been started into growth; they cannot support anything approaching stagnant moisture. Good turfy soil containing lime rubble forms the best rooting medium, but this must be assisted from time to time by dressings of well-rotted manure, which may be lightly forked in the surface soil before the trees are started into growth. As the fruit is borne on the previous year's growth it is necessary that good, well-ripened shoots should be produced each year. To assist in this, all worn-out growths must be removed as soon as the crop has been gathered, and any young shoots not required for the following year must be cut out. Towards the end of summer some growers stop the points of the shoots in order that the buds may be well matured on the lower parts of the branches. To assist in ripening the branches as much ventilation as possible must be given night and day during late summer and autumn. On the fall of the leaves the branches are cut loose from the trellis and well washed with an insecticide; the house being thoroughly cleansed and white-washed. The branches are tied neatly to the trellises again to prepare the trees for the following year's forcing. When fruits are desired as early as May it is necessary to start the trees into growth early in December. A comparatively low temperature, say 40° to 45°, is all that is necessary until the fruits have formed, after which it may be increased gradually, until a minimum of 60° and a maximum of 65° to 70°, or rather more with sun heat, has been reached. For early

houses, at all events, pollination must be assisted by going over flowers with a camel's hair brush and dusting the pollen on the stamens on sunny days. By lightly shaking the branches occasionally the distribution of the pollen is also effected. The trees may be syringed twice daily, except when they are in flower or when the fruit is ripe. Too many fruits are almost sure to form, and some need to be removed. The "thinning" is best carried out on two or three occasions. Growers consider that a good average crop consists of one fruit to every square foot of roof space. Throughout the period of growth water must be given frequently, and on no account must the beds be allowed to become dry. Liquid manure occasionally will do good. For successive crops the houses may be started at intervals of four or five weeks. Plants in pots may be treated in a similar way to those recommended for Cherries. Disbudding is explained on page 511.

PEAR.—Pears are included amongst the various fruits grown in pots in the orchard house. They are grown on the Quince stock and are repotted in good turfy soil each autumn. They must be grown in a cool temperature and given plenty of fresh air. They cannot be forced.

PLUM.—These are also included amongst the list of fruit trees available for growing in pots in the orchard house. They require similar treatment to that recommended for Cherries.

STRAWBERRY.—To obtain Strawberry plants suitable for forcing it is necessary to layer strong runners in pots during June of the preceding year. About the end of July these are potted as firmly as possible in turfy soil in 6-inch pots and are placed outdoors in a sunny position. About the end of November they may be removed to frames, and a few weeks later the first batch may be placed in a warm greenhouse with a minimum temperature of 45°. After a few weeks have elapsed, they may be removed to a shelf in an early vinery or Potting house, where they will thrive under the same treatment as the other occupants of the house. The night temperature should not rise higher than about 50° or 55° until the little fruits have formed, and while the plants are in flower they must have plenty of fresh air. When the young fruits are seen to be developing the temperature may be raised gradually until it is, if necessary, 65° at night, with a 10° increase by day. Successive batches may be brought in at intervals of two or three weeks. Two good varieties for forcing are Royal Sovereign and La Grosse Sucrée.

THE ORCHARD HOUSE is a light and airy structure, sometimes unheated and sometimes slightly heated, in which Apples, Peaches, Cherries, Plums, Peaches, Nectarines, Apricots are cultivated during the time they are growing and perfecting their fruit. Trees are occasionally planted out in such a house, but more frequently they are grown in pots and placed outdoors after the fruit has been gathered. Such houses prove useful for Chrysanthemums, etc., in autumn before the fruit trees are rehoused.

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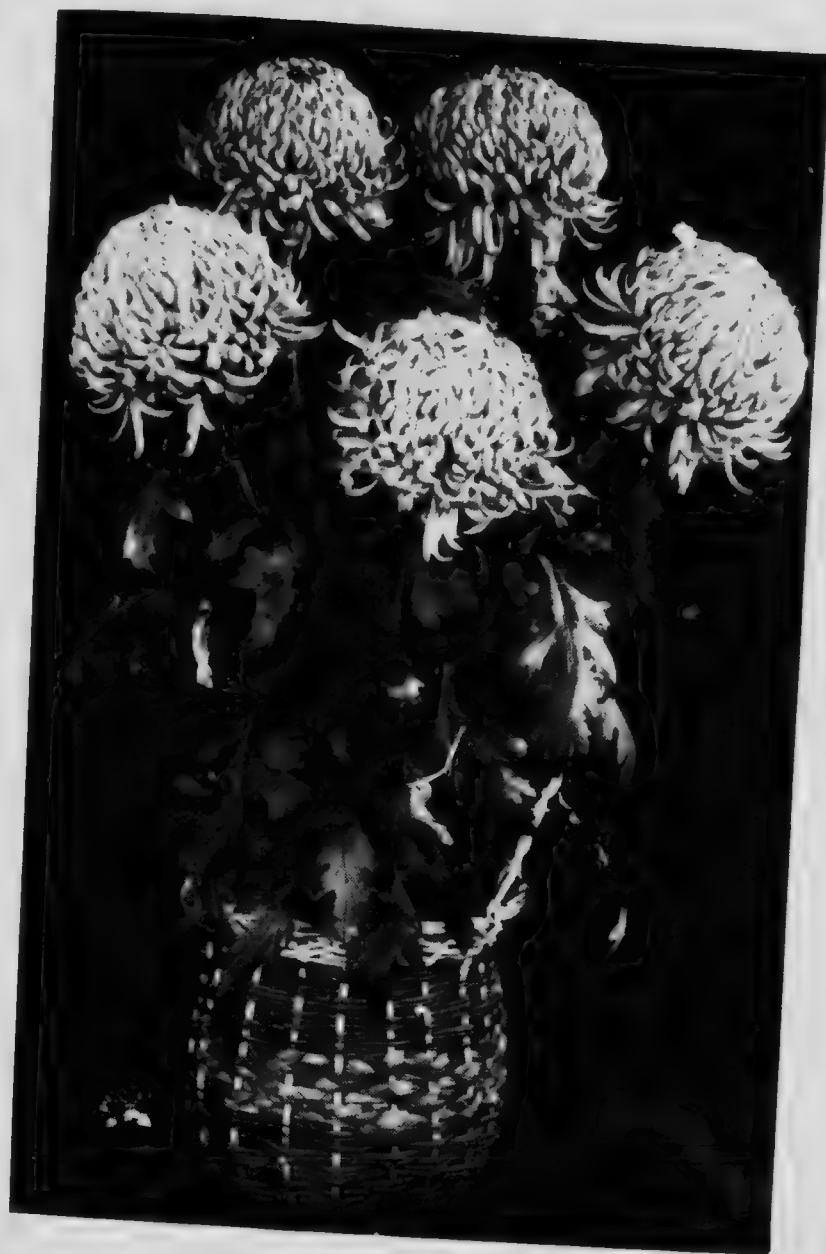
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CHRYSANTHEMUM BALL OF GOLD.



CHAPTER XXXVIII

CHRYSANTHEMUMS

FOR one who grows, or cares to grow, Chrysanthemums in the greenhouse for the sake of very large blooms, there are hundreds, probably thousands, who prefer to regard the Chrysanthemum as an outdoor plant. Many owners of greenhouses who find the Chrysanthemum an indispensable autumn and winter flower, take no interest in such involved matters as the "timing" and "taking" of the flower buds which have such a real interest for growers for exhibition. I must confess I could never raise much enthusiasm for the monster blooms a foot or more across (you rarely get more than three on a plant, and a plant may easily be 6 feet high!), and still less for the elaborate and artificial system of cultivation that becomes necessary to produce them. However, as THE COMPLETE GARDENER must not fail of its purpose, I will endeavour to show the reader how he may grow all sorts of Chrysanthemums, from the Groundsel-like yellow flower that represents the Chrysanthemum as originally introduced (still to be seen in the greenhouse at Kew if nowhere else), and the quaint little Pompons that are for all the world like big double Daisies, to the giant flowers to be seen at shows in November. But let me warn the reader that if his ambitions are centred on growing big blooms that shall wrest prizes from all comers he would be wise to purchase a shilling treatise on the subject wherein he may revel to his heart's content.

Whatever may be the object, whether big blooms or little ones, the dull months of the year are the best time to make a start. We will suppose the amateur needs a greenhouse full of Chrysanthemums during November and December, with perhaps a few blooms to carry on the flower season until the new year's blossoms, in the shape of Freesias, Roman Hyacinths, etc., turn in. The cuttings are taken from the old plants during January and February at intervals of a week or two, or as the cuttings become available. The most important point in this connection is to select those that grow through the soil in the flower-pots, and to discard those that arise directly from the stem itself. The latter have an unpleasant habit of forming flower

buds when they ought to be growing, and this, as anyone may scarcely lead to satisfactory results. If the cuttings are in small flower-pots, one or more in each pot, if sandy, sifted used, and the cuttings are placed in a closed frame for about weeks, they will form roots. No heat is necessary in mild weather, though a little warmth in the hot-water pipes during cold weather is beneficial. Under a bell-glass or handlight in a greenhouse they also root readily. When the cuttings are in an unheated frame it is wise to give a little air every day in mild, warm weather, so that the atmosphere may be "sweetened," if the reader understands what this means. Once the cuttings are rooted it is all plain sailing.

It should not be forgotten that the Chrysanthemum is practically a hardy plant, although some of the highly bred varieties are unfortunately less hardy than others. All sorts benefit by plenty of air in favourable weather. Thus when the cuttings are rooted they are given air every day unless, of course, it is freezing or snowing, or doing something else equally atrocious. Soon comes the question of repotting, and the amateur may well dispense with the mysterious recipes that are sometimes recommended. He should, however, use some good turfy soil, mixing with this some sand and, if it is conveniently procured, a little leaf soil also—a free sprinkling of the two latter ingredients is required. From the small 2-inch flower-pots in which the cuttings are rooted, the first move is to 4-inch wide pots. Water them through a "rose" on the top of the can, so that the soil is not disturbed. Subsequently water only given when the soil appears dry, and until the plants have plenty of fresh roots this may not be oftener than once a week.

The grower for greenhouse decoration need not trouble himself about the process of "stopping" the shoots, for all that is first necessary is to pinch out the point of each plant when about 6 inches long, so that a "bushy" or, in other words, a well-branched plant may be formed. Soon afterwards the grower who likes to have plants with from three to six stems on each plant and only one bloom on each must part company with those who prefer a plant with many stems and numerous flowers. The latter will, when fresh shoots are about 6 inches long, pinch out the point of each until midsummer, and will move few or none of the flower buds that subsequently form. On the contrary, he whose ideal plant is one that bears six or eight buds of fair size will limit the growths to that number, and take away all the buds except the central one. Early in July comes the time for repotting into large pots, those of 8 and 9 inches diameter being commonly used. The only things that I shall insist on as being essential to success are soil of good, though not necessarily elaborate quality and firm potting. I believe half the failures with plants in pots are due to the soil not being made sufficiently firm. For the turfy soil broken into pieces not smaller than a pigeon's egg is the staple; if with this is mixed a little wood ashes and a sprig

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Yellow Alyssum.

Rock Rose.

Evergreen Candytuft.

A LUXURIANT FLOWER CORNER.

of bonemeal, it will not be the fault of the soil if the plants are not a success. Probably the reader is wondering where the plants are to be put throughout the summer months, since it has just occurred to me that I have made no mention of this important fact. Well, he will be relieved to learn that the plants are put out of doors as soon as the weather is at all respectable—say towards the end of April. An ideal place for them is a sunny spot on a ground covering of ashes. This not being available, the plants may be placed on the garden paths where, it is true, they will be somewhat in the way, but where they will be quite happy so long as the sunshine and fresh air have free play about them. In mid or late September, according to the weather, the grower's care will be to bring the plants into the greenhouse, where they will soon prepare to bloom.

One may do almost anything with the Chrysanthemum in the matter of "stopping" the growths, as witness those wonderfully trained specimens that one used to see at shows only a few years ago. Every time one nips off the tip of a growth, other growths arise, and the gardener may select as many of these as will form such a plant as is in view. If still further stems are needed after the young plant has been pinched once, it is an easy matter again to nip off the tips of the fresh shoots. In this way one may grow a plant with as many stems as one wishes. But it is as well to remember that a plant with numerous stems will not yield such fine flowers as that with only, say, half a dozen stems. One can further regulate the size and quality of the flowers by disbudding. In fact, so far as the disposition of its growths and the size and quantity of the blooms are concerned, there is probably no plant more accommodating.

Let us now see if we can throw some light on the vexed question of "taking" and "timing" buds—a question that only assumes importance when big blooms are desired—blooms that even if not exhibited are consoling to the grower because he is apt to assure himself that if they *had* been shown they would certainly have "caught the judges' eye." How much easier it is to win prizes when the flowers are kept at home than when they take their place on the show-board side by side with others of their kind! However fine the flowers may look in the greenhouse at home, they are apt sometimes to disappoint when seen in competition with those of other growers. Towards the end of April or early in May plants that have not been "stopped" will form several growths naturally, and a bud is seen in the centre of the branching shoots which is known as the "break" bud, presumably because it occurs when the first "break" or new growth is formed. Of these several new shoots that form naturally, the practised grower generally selects three and rubs off the others. In due course, each of the three chosen growths will bear a flower bud at its top; these are called "first crown" buds. If the grower decides that a first crown bud will not suit the variety in question, or will not give blooms at the date required, he proceeds to induce

the formation of "second crown" buds by rubbing off the "first crowns." If, however, the first crown is deemed suitable it is "taken" that is to say, all the little growths that appear around it are removed so that the selected bud may have every chance to reach its full development. If, however, it is necessary to choose a "second crown" bud, one of the little shoots that otherwise would be removed is allowed to develop and form a bud—a "second crown." A "terminal bud" is the last to appear, and may be distinguished easily, since it is surrounded not by growths as the first and second crown buds are, but by other buds.

OUTDOOR CHRYSANTHEMUMS.—If there is one plant above all others easy to grow it is the outdoor, or, as it is commonly termed, Earliest Flowering Chrysanthemum. There are now scores, if not hundreds of varieties, and, if desired, flowers may be had as early as August although I am as unable to appreciate a Chrysanthemum in August as a Dahlia in June—I have even seen Dahlia flowers at a show in May. These Chrysanthemums are most valuable during September and October; if a few plants are potted up in September, and in October are taken into a cold greenhouse, they will provide bloom throughout November. I was for long in the habit of rooting the cuttings in the ordinary way, namely, by detaching them from the parent rootstock (choosing only those that come through the soil and not those that grow from the stem), cutting them through immediately beneath a joint, and inserting in pots of sandy soil in a frame in February or March. I was explaining my method one day to a friend whose outdoor Chrysanthemums in autumn are invariably the envy of his neighbours. He laughed my elaborate method to scorn. "Sheer waste of time," said he. And then explained that all he did to ensure a fine harvest of blossom was to break up the old roots in March and insert single pieces or little clumps—according to the number of fresh plants needed—in well-dug soil. Most of them have a few roots, but even those that have not soon become rooted. It is true that they look rather unhappy for a few days after such rough treatment, but they soon recover and grow away vigorously, making fine free-blooming plants by September. I am sure that my plants treated much more tenderly, are not finer. There are some plants that one can do almost anything with; the outdoor Chrysanthemum is one of them.

If one wishes to grow them for the greenhouse in autumn—and there the blooms are fresher and finer than when exposed to the rain and wind outdoors—there is no need to grow them in flower pots all the summer through. They are put out in a border in May and left there until September. Then, if potted in large flower pots, kept thoroughly moist at the roots and in the shade for a few days, they do not only take no harm, but soon actually appear as though they have been growing in the flower pots always. There are many beautiful

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THE GIANT FENNEL.
(See page 58.)



AN UNCOMMON SPRING FLOWER,
ORNITHOGALUM ARCUATUM.

CHRYSANTHEMUMS

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varieties from which to choose, and a wide colour range is represented. It is impossible to keep pace with all the novelties, and really some of them are very similar to older sorts.

CHRYSANTHEMUMS FROM SEED.—Growing single Chrysanthemums from seed has a singular fascination, and should make an especial appeal to the amateur—that is, if he cares for single-flowered varieties. I find them very attractive, and each season make room for a few in my already over-stocked garden. They come into bloom in September and October, and make elegantly branched plants that are far more graceful in form than those raised from cuttings. They are well suited to growing in flower pots and keep the greenhouse bright with blossom in the early autumn months. It is best, I think, with seedlings to keep them in flower pots all the summer through, and repot them as becomes necessary, though if this method gives too much trouble they may be planted out in May, taken up and repotted in September, and brought into the greenhouse when bad weather sets in. Seed is sown in January or February. When only a cold greenhouse is available, it is not worth while to sow the seeds before February, since the temperature would not be high enough to ensure germination. If sown about the middle of February in flower pots or pans, the seedlings show through in a few weeks, and when an inch or so high are potted off singly in small pots, sifted turfy soil being used and plenty of sand mixed with it. The plants are kept in the greenhouse until well-rooted in these small pots, air being freely admitted on warm days. Then they are put in 5-inch wide flower pots, each one in a pot to itself, and a week or so afterwards, if the weather is mild, they may be put out-of-doors, either on a gravel path, boards or ashes, preferably the latter, in a sunny spot. There they remain all the summer through. If really good plants are wanted, a further repotting is necessary when the plants are well-rooted in the 5-inch pots, those of 7 inches in diameter being used. Good turfy soil, with which a sprinkling of artificial fertiliser such as bonemeal is mixed, is used as a potting compost, care being taken to make the plants firm. The plants need copious supplies of water during the summer, except for a week or two after being repotted, when care is needed not to saturate the soil. It is important always to water a plant thoroughly before it is repotted. If the grower will use good turfy soil, and when the plants are well rooted in the 7-inch pots, give a weekly sprinkling of fertiliser, and take care never to let the soil get dry, there will be no doubt of his success. Among the great variety of flowers that a packet of seed will produce, there are sure to be some worthless ones, but there will also be many of great beauty. It is the uncertainty of the result that makes flower-growing from seed such a fascinating occupation. The grower may draw blanks, but he may also discover a real prize in the flower world.

HARDY AND HALF HARDY PLANTS TO SOW IN THE GREENHOUSE IN JANUARY

Name	Height in feet	Colour of Flowers	Season of Flowering	Remarks
Antirrhinum, Tall (Snap- dragon) Intermediate Dwarf, or Tom Thumb	3 ft. 1½ ft. ½ ft.	Various, as many as 12 distinct colours are of- fered separately Yellow, white, crimson, rose;	July to Oct. " "	Valuable for cutting and the mixed or shrubby border The best Snapdragons for bedding A pleasing trio are Yellow Prince, White Queen and Crimson King The single and double varieties are both valuable for bedding Crimson Gem and Fairy Queen are good sorts
Begonia, Tuberous-rooted ..	1 ft.	Red, yellow, pink, white, &c.	July to Sept.	The small seeds germinate freely Handsome foliage, seeds very hard, soak in warm water for 24 hours previous to sowing
Begonia semperflorens, or Fl- brous-rooted Begonias	"	Red, white, pink	"	The Marguerite and Vanguard are good strains, producing a large percentage of double flowers
Calceolaria, Bedding ..	" 3 ft.	Yellow, red, brown Shades of red and yellow	End June to Oct. Aug., Sept.	The raising of Japanese Chrysan- themums from seeds is becoming popular
Canna (Indian Shot)	"	Red, white, pink, etc.	Aug. to Oct.	May be sown in Aug. or Jan.
Carnation, Annual, or Mar- guerite	1½ to 2 ft.	Various colours, single, double and semi-double flowers	Sept., Oct.	Princess Henry is one of the best varieties to treat as an annual
Autumn-flowering Chrysan- themums	3 ft.	Valued for silvery foliage	Useful for summer bed- ding as an edging End July to Sept.	The single varieties are largely grown from seeds; the double and cactus sorts may also be raised from seeds
Centaurea candidissima or ragusina	½ ft.	White	July till cut by frost	If sown in heat and planted out in May, these two sorts flower in autumn
Chrysanthemum maximum (The Shasta Daisy)	2 ft.	Mixed colours in variety	Aug. to Oct.	Suitable for sub-tropical
Dahlia ..	4 to 6 ft.	Sky blue Gentian blue	"	Common for the greenhouse
Delphinium Belladonna and Queen of the Blues ..	3 ft. 1½ ft.			

FLOWERS FROM SEED

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grown from seeds, and cactus sorts may also be raised from seeds. If sown in heat and planted out in May, these two sorts flower in autumn. Suitable for subtropical bedding. Treated as annuals, fungus does not damage the plants so badly. Metallic red foliage.

Delphinium Belladonna and Queen of the Blues ..	3 ft. 1½ ft.	Sky blue Gentian blue	Aug. to Oct.
Eucalyptus globulus (Blue Gum) ..	3 to 4 ft.	Seldom flowers in this country	Grown for the ornamental foliage
Double and Single Hollyhocks ..	4 to 6 ft. or more	Many shades of colour	Aug. to Oct.
Lobelia, Queen Victoria ..	2 to 3 ft.	Scarlet flowers	End July to Sept.

Name	Height in Feet	Colour of Flowers	Season of Flowering	Remarks
Michaelmas Daisy (Perennial Aster)	3 to 5 ft.	Blue, mauve, lavender, white	Sept., Oct.	Very good varieties may be raised from seeds obtained from reliable sources
Pansies, Fancy, Show and Bedding ..	½ ft.	Very wide variation in colours and markings	End June to Oct.	Seeds may be obtained in separate colours, which come very true
Penstemons ..	2 ft.	Red, purple, pink and white shades	July to Oct.	The flowers of seedling Penstemons are equal to many named varieties
Scabiosa caucasica ..	"	Mauve	Aug., Sept.	Really a perennial, but if sown early flowers the same year
Sweet Pea: Hundreds of named varieties ..	6 to 9 ft.	Many delicate shades of colour, too numerous to mention	June to Sept.	Sow in a cool greenhouse or cold frame
Verbenas, Bedding ..	1 ft.	White, pink, scarlet, purple; sold in separate colours, or mixed	July to Sept.	Seedling Verbenas are more robust in habit than those propagated from cuttings
Viola, Bedding (Tufted Pansy)	½ ft.	Various shades of yellow, blue, purple, white	July to Oct.	A mixed packet of seeds will give a wide range of colours; distinct colours may also be purchased separately

SEEDS OF GREENHOUSE PLANTS TO SOW IN JANUARY

Name	Height in Feet	Colour of Flowers	Season of Flowering	Remarks
Abutilon ..	3 to 10 ft. or more	Red, yellow, white, etc.	Most of the year, especially summer and autumn	A favourite plant, with large, drooping flowers
Acacia dealbata (Mimosa or Silver Wattle) ..	6 to 20 ft.	Yellow	Jan., Feb.	Pretty glaucous green foliage and fragrant blossoms
Asparagus Sprengeri ..	trailing	White	Summer-flowering, grown for foliage	Best in hanging baskets

Name	Height in Feet	Colour of Flowers	Season of Flowering	Remarks
Begonia, Tuberous-rooted ..	1 to 1½ ft.	Red, yellow, white, pink, etc.	May to Oct.	Double and single varieties
Begonia semperflorens, or the Fibrous-rooted Begonia	"	Red, pink, white	Will flower in warm greenhouse throughout the year	Named varieties come true from seeds
Canna (Indian Shot) ..	2 to 5 ft.	Shades of red and yellow	Summer and autumn	Soak in hot water, or file the seeds previous to sowing
Carnation, Annual, or Marguerite	1½ to 2 ft.	Variety of colours	Aug., Nov.	Useful for cutting
Chrysanthemum, Autumn or Japanese	3 to 4 ft.	Wide range of colours; double, semi-double, single	Sept. to Nov.	The flowers of seedling plants are equal to those grown from cuttings for home decoration
Clianthus Dampieri (The Glory Pea)	2 to 3 ft.	Crimson, black blotch	Aug. to Oct.	Young plants are best grafted on Colutea arborescens
Coleus, fine foliage varieties..	1 to 3 ft. or more	Blue	Autumn-flowering, grown for highly coloured foliage, not flowers	Seedling Coleus are as easy to grow as those raised from cuttings
Cyclamen	½ to 1 ft.	Red, pink, rose, salmon, white	Winter	A late additional sowing may be made in January
Eucalyptus globulus (Blue Gum Tree)	6 to 12 ft. or more	Ornamental foliage	Seldom flowers in this country	Useful tall plant to arrange with Chrysanthemums in the greenhouse
Fuchsia	2 to 5 ft.	Various colours, single and double sorts	Seedlings flower Aug. to Oct. the first year from seeds	Plants 4 ft. in height may be obtained in one season
Gloxinia	½ ft.	Red, blue, white, etc.	July to Oct.	Gloxinias are noted for their rich and delicate colours
Grevillea robusta (Australian Silky Oak)	1 to 4 ft. or more	Seldom flowers in this country	Grown for fern-like foliage	Useful to arrange with flowering plants, or as a table plant indoors
Heliotrope (Cherry Pie) ..	1 to 4 ft.	Varied shades of violet and lavender	July to Oct.	Seedling Heliotropes deserve more attention
Myrsiphyllum asparagoides (Smilax)	6 to 8 ft.	Grown for foliage	June to Sept.	Produces long trails of foliage, 6 to 8 ft. in one year
Nicotiana Sandera (Red Tobacco Plant)	3 to 5 ft.	Various shades of red	July onwards	A valuable annual for the greenhouse
Pelargonium, zonal (Geranium)	1 to 2 ft. or more	Red, pink, white, etc.		Raising Geraniums from seeds is

attention
Produces long trails of foliage,
6 to 8 ft. in one year
A valuable annual for the green-
house
Raising Geraniums from seeds is
a fascinating hobby, especially
from home-saved seeds

June to Sept.
July onwards

and lavender
Grown for foliage
Various shades of red
Red, pink, white, etc.

6 to 8 ft.
3 to 5 ft.
1 to 2 ft.
or more

Myrsiphyllum asparagoides
(Smilax)
Nicotiana glauca (Red
Tobacco Plant)
Pelargonium, zonal (Geranium)

Name	Height in Feet	Colour of Flowers	Season of Flowering	Remarks
Petunias, Double and Single	1 to 2 ft.	Varied colours	June, Sept.	The flowers of Petunias grown in pots are much finer than those outside
Rivina humilis	3 ft.	Small white	June, July	Valued for the ornamental Red Currant-like fruits which succeed the flowers in autumn
Saintpaulia ionantha (Usambaria Violet)	1 ft.	Blue, white, purple	July, onwards for several months	A low, spreading, greenhouse plant, profuse flowering
Salvia splendens nana (Glory of Zurich, or Scarlet Sage)	1 to 1½ ft.	Scarlet	July, Oct.	A dwarf summer-flowering scarlet Sage
Solanum jasminoides ..	climber	White	Flowers in Sept. the first year from seeds	One of the best climbers for a cool greenhouse
Streptocarpus (Cape Primrose)	½ to 1 ft.	White, lavender, purple, rose, red, etc.	July, onwards for several months	Produces dwarf compact heads of flowers, very easy plants to grow in warm greenhouse

SEEDS OF GREENHOUSE PLANTS TO SOW IN FEBRUARY

Name	Height in Feet	Colour of Flowers	Season of Flowering	Remarks
Abutilon	3 to 8 ft. or more	Red, yellow, white, pink, etc.	Most of the year, profusely in summer and autumn	A tall climber; young plants may be flowered in small pots if the points of the shoots are removed once or twice
Acroclium roseum and album	1 ft.	Single rose and white sorts, also double	June, July	Immortelle or Everlasting Flower: sow 10 to 12 seeds in a 5-in. (48 size) pot
Amaryllis, or Hippeastrum	2 ft.	Generally red shades, or white, with red markings	Flower in from two to three years from seeds	A bulbous plant, with large handsome flowers
Aralia Sieboldi (Castor-Oil Plant)	1 to 3 ft.	White	Mar. and April Oct., Nov.	Glossy green foliage: a popular table plant

Name	Height in feet	Colour of Flowers	Season of Flowering	Remarks
<i>Asparagus plumosus</i>	climber	Greenish white	Flowers not conspicuous	Fern-like foliage, valuable to arrange with cut flowers
<i>Sprengerii</i>	trailing 1½ ft.	White	A foliage plant July, Aug.	Best grown in hanging baskets
<i>Balsam. Camellia</i> and <i>Rose-flowered</i>	1 to 1½ ft.	Scarlet, white, pink, purple	July to Oct.	Old favourites for the cool greenhouse in late summer
<i>Begonia</i> , <i>Tuberous</i>	1 ft.	The most distinct colours are crimson, red, pink, yellow, and white	"	A greenhouse filled with seedling <i>Begonias</i> provides a blaze of colour in autumn
Double and Single, also Fringed varieties		Red, pink, white		The compact plants are a mass of small flowers for three or four months, while, if the house is well heated, flowering continues to Christmas
Fibrous-rooted <i>Begonias</i>				Soak or file the seeds previous to sowing
<i>Canna</i> (Indian Shot)	2 to 5 ft.	Shades of red and yellow	Aug. to Oct.	Of immense value for cutting; a large percentage of the flowers come double
<i>Carnation</i> , Annual, or <i>Marguerite</i>	2 ft.	Red, pink, white, etc.	Aug., onwards for three or four months	Noted for the rich colours
<i>Celosia plumosa</i> (Pyramid <i>Celosia</i>)	"	Yellow, scarlet, crimson	Aug., Sept., Oct.	
<i>Celata</i> , <i>Arciturus</i>	1 to 1½ ft.	Yellow, purple anthers	July, Aug., Sept.	Slender spikes, clothed with blossoms
<i>Chrysanthemums</i> , Autumn-flowering <i>Japanese</i>	3 ft.	Various colours, single, semi-double and double	Sept. to Nov.	Particularly valuable for cutting
<i>Cockscomb</i>	½ ft.	Yellow, crimson	Aug. to Oct.	Rich, velvety colours
<i>Coleus</i> , Ornamental-leaved	1 to 3 ft.	Blue	Autumn	Grown for the rich, highly coloured foliage
<i>Freesia</i>	1 ft.	Fragrant white	Sept., Oct.	Seedling <i>Freesias</i> will flower the first year if given careful treatment
<i>Fuchsia</i> , Double and Single ..	2 to 4 ft. or more	Red, white, purple	Aug., onwards the first year from seeds	Very attractive.

oured foliage
Seedling Ficus will flower the
first year if given careful treat-
ment
Very attractive.
A comparatively new plant which
is attracting considerable atten-
tion
Continue to flower for several
months in a warm greenhouse

		Sept., Oct.		
Fuchsia		1 ft.	Fragrant white	
Fuchsia, Double and Single..		2 to 4 ft. or more	Red, white, purple	
Gerbera Jamesoni (Barber- ton Daisy)		1 to 1½ ft.	Red, orange; occasion- ally yellow	
Gerbera Hybrids		1½ to 2 ft.	White, yellow, orange, crimson	

FLOWERS FROM SEED

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Name	Height in Feet	Colour of Flowers	Season of Flowering	Remarks
Gloxinia		1 to 1½ ft.	Aug. to Oct.	One of the choicest flowers for a warm, moist greenhouse
Heliotrope (Cherry Pie)		1 to 3 ft. or more	July onwards	A useful climber for the back wall of a cool greenhouse
Impatiens Sultani (Single Balsam)		1 to 1½ ft.	July to Sept., or longer in a warm greenhouse	Profuse and continuous flowering
Lobelia tenuior		1 ft.	July to Sept.	Pretty in pots or hanging baskets when touched
Mimosa pudica (The Sensitive Plant)		1 ft.	Aug. to Sept.	A popular plant, the leaves close Geraniums are easily raised from seeds; do not stop the plants till the flower buds show
Pelargonium (Geranium)		1 to 2 ft.	Aug. onwards	A pretty little plant for the warm greenhouse
Saintpaulia ionantha (Usam- bara Violet)		1 ft.	"	The best and easiest grown scarlet flower for the greenhouse
Salvia splendens (Scarlet Sage)		2 to 3 ft.	Autumn and winter	Schizanthus are half-hardy annuals, but the profusion of delicate flowers is best seen in the greenhouse
Schizanthus (The Butterfly Flower)		1 to 2 ft.	July onwards	Long, slender, trailing shoots
Smilax medeoloides		6 ft.	Train up thread or thin string	The dried flowers may be used for winter decoration
Statice sinuata (Sea Lavender)		1 ft.	June to Aug. or Sept.	Popular plants for the warm end of a greenhouse
Suworowii		1½ ft.	July onwards	Give same treatment as Gerbera
Streptocarpus (Cape Primrose)		1 to 1½ ft.	"	
Tydaea		1 to 1½ ft.	Aug. to Oct.	

HARDY AND HALF-HARDY PLANTS TO SOW IN THE GREENHOUSE IN FEBRUARY

Name	Height in Feet	Colour of Flowers	Season of Flowering	Remarks
<i>Ageratum</i>	3 to 1½ ft.	Mauve, white	End June to Sept.	Popular summer bedding plants; the dwarf varieties are used for edging
<i>Antirrhinum</i> , Tall (Snap-dragon)	3 ft.	Seeds of twelve distinct shades of colours may be purchased separately	July to Oct.	Tall Snapdragons are especially valuable for borders
Intermediate	1½ ft.	" Yellow, white, crimson, rose	" "	The best section for bedding
<i>Dwarf</i> , or <i>Tom Thumb</i>	½ ft.	Mixed colours	Aug., Sept.	Sturdy little plants
<i>Auriculas</i> , Border ..	½ to 1 ft.	Scarlet, white, pink, purple	July to Sept.	The strongest seedling plants produce a good truss of flowers in autumn
<i>Basium</i> <i>Camellia</i> and <i>Rose-flowered</i>	1½ ft.	Red, yellow, white, pink	" "	A favourite annual in cottage gardens
<i>Begonia</i> , Tuberosa	1 ft.	Red, white, pink	June to Sept.	Both double and single varieties are suitable for summer bedding
<i>Begonia</i> <i>semperflorens</i> , Fibrous-rooted	"	Red, white, pink	July to Oct.	<i>Crimson Gem</i> (red) and <i>Fairy Queen</i> (white) are good sorts
<i>Calceolarias</i> , Bedding	"	Yellow, brown, red	Aug. to Oct.	The small seeds germinate freely
<i>Carnation</i> , Annual, or <i>Mar guerite</i>	1½ to 2 ft.	Red, white, rose, pink	Aug., Sept.	The <i>Maguerite</i> and <i>Vanguard</i> strains produce a large percentage of double flowers
<i>Celosia plumosa</i> (Pyramid)	1 ft.	Yellow, scarlet, crimson	Sept., Oct.	Brilliant colours for sheltered beds and borders
<i>Celosia</i>	3 ft.	Various colours, single, double, and semi-double flowers	Aug., Sept.	Seedling <i>Chrysanthemums</i> are useful for cutting
<i>Chrysanthemums</i> , Autumn-flowering (Japanese <i>Chrysanthemums</i>)	2 ft.	White	Aug., Sept.	<i>Princesse Henry</i> is a good sort to sow in heat
<i>Chrysanthemum</i> maximum (The <i>Shasta Daisy</i>)	1½ ft.	Yellow, crimson		A choice plant for a sheltered bed
<i>Cockscomb</i>	1 ft.			

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Chrysanthemums, Autumn-flowering (Japanese Chrysanthemum)	3 ft.	Various colours, single, double, and semi-double flowers	Sept., Oct.	Seeds of double and single varieties may be purchased
Chrysanthemum maximum (The Shasta Daisy)	2 ft.	White	Aug., Sept.	Single fringed and double flowers
Cockscomb	1 ft.	Yellow, crimson	"	Generally treated as a biennial, but sown early in the year will bloom in autumn
Dahlia, Single, Cactus and Double	4 to 6 ft.	Varied	July, till cut by frost	Produces slender sprays of flowers delightfully fragrant, useful for bedding and window boxes

Name	Height in Feet	Colour of Flowers	Season of Flowering	Remarks
Dianthus chinensis (Indian Pink)	1 ft.	Variety of colours	July to Sept.	Seeds of double and single varieties may be purchased
Hedewigi (Japanese Pink)	"	White to crimson, rich and varied	"	Single fringed and double flowers
Erysimum (Perennial Wall-flower)	1 to 1 ft.	Golden yellow	Aug. to Oct.	Generally treated as a biennial, but sown early in the year will bloom in autumn
Gaura Lindheimeri	2 ft.	White	July to Sept.	Produces slender sprays of flowers delightfully fragrant, useful for bedding and window boxes
Heliotrope (Cherry Pie) ..	1 to 3 ft.	Lavender, violet	"	The Hollyhock fungus does not attack seedlings so badly as old plants
Rock, Double and Single	4 to 8 ft. or more	Many colours, red, white, pink, etc.	Aug. to Oct.	Spreading kind for window boxes
petiosa	1 to 1 ft.	Dark blue	June, Sept.	Popular edging plants
as Daisy (Aster) ..	1 ft.	Blue, white	"	Useful sprays for cutting may be grown from seeds
is Jalapa (Marvel of ..	3 to 5	Blue, lavender, white, etc.	Sept., Oct.	A half-hardy perennial, easily raised from seeds sown in spring
ina affinis (Tobacco ..	2 ft.	Various colours	End July to Sept.	Sutton's Hybrids are a comparatively new race, comprising numerous colours
idara	3 ft.	White, fragrant	June to Sept.	The red Tobacco plant is exceedingly free blooming
ylvestris	3 to 4 ft.	Red, white and pink shades	July, till spoilt by frost	A bold-looking plant, flowers remain open during the day
Fancy, Show and ..	5 to 6 ft.	Pure white	July to Sept.	Beds of seedling Panicles in separate colours are pleasing
.. .. .	1 ft.	Wide variation in colours and markings	"	The flowers of a selected strain of seedlings are equal to many named sorts
.. .. .	2 ft.	Red, purple, rose, white, shades	"	The compact bedding Petunias are charming
.. .. .	1 to 1 ft.	Mixed colours	End June to Sept.	Petunias flower freely throughout the summer and autumn
Large-flowering	1 ft.	Mixed or in separate colours	"	Raised now, the plants come into flower early
Phlox Drummondii	1 ft.	Selection of brilliant colours	"	

Name	Height in Feet	Colour of Flowers	Season of Flowering	Remarks
Sweet Pea	6 ft.	Rich and varied	June to Sept. and Oct., if sown outside	May be sown in a greenhouse, cold frame, or on open border
Salvia splendens (Scarlet Sage, Fireball or Glory of Zurich)	1½ ft.	Scarlet	July to Oct.	Compact plants, covered with spikes of flowers
Statice sinuata (Sea Lavenders)	1 ft.	Mauve	June to Aug.	The dried flowers are useful for winter decoration
Suworowi	1½ ft.	Pale rose	July to Sept.	Spreading in habit, the Verbena is especially pleasing as a ground-work for tall plants
Verbena, Bedding	1 ft.	White, pink, scarlet, purple	"	Valuable for autumn blooming
Viola (Bedding, or Tufted Pansies)	½ ft.	Mixed, or in separate colours	July to Oct.	Valuable bedding and border annual, useful for cutting
Zinnias, Double	2 ft.	Scarlet, white, yellow, rose and intermediate shades	July to Sept.	

HARDY AND HALF-HARDY PLANTS TO SOW IN MARCH

Name	Height in Feet	Colour of Flowers	Where to Sow	Season of Flowering	Remarks
Alyssum maritimum (Sweet Alyssum)	½ to 1 ft.	Fragrant white	Frame or open border	Summer, autumn	A dwarf variety, compactum or minimum, is useful for edging beds
Amaranthus caudatus (Love-lies-Bleeding)	2 to 3 ft.	Pendulous, dark red racemes	"	July, Aug.	A useful tall plant for the shrubby or mixed border
Asperula azurea setosa	1 ft.	Pale blue	Open border	July—Sept.	Sweet-scented blossoms
Aster, Comet	1½ ft.	A wide selection of colours	Cool greenhouse or frame	"	Valuable for borders and cutting
Ostrich Plume	1½ ft.	Many pleasing shades	"	"	Loose, graceful flowers
Victoria	"	Scarlet, light and dark blue, white, etc.	"	"	Popular for exhibition and garden
Dwarf Border or Victoria Sinensis	1½ to 2 ft.	Mauve, blue, pink	"	"	Prized for beds and edging
			"	"	Sinensis, flowers valuable for

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Aster, Comet	..	1 1/2 ft.	A wide selection of colours	Color greenhouse or frame	"	"	valuable for beds and cutting
Ostrich Plume..	..	1 1/2 ft.	Many pleasing shades	"	"	"	Loose, graceful flowers
Victoria..	..	..	Scarlet, light and dark blue, white, etc.	"	"	"	Popular for exhibition and garden
Dwarf Border or Victoria Sincensis	..	1/2 to 1 1/2 ft.	Mauve, blue, pink, white	"	"	"	Prized for beds and edging
	..	..		Frame or open border	"	Aug., Sept.	Single flowers valuable for cutting

Names	Height in feet	Colour of Flower	Where to Sow	Season of Flowering	Remarks
Balsam, Camellia-flowered or Rose-flowered	1 1/2 ft.	Several shades of colour	Greenhouse	Aug., Sept.	More easily grown than most people are aware
Bartonia aurea	1 to 1 1/2 ft.	Yellow	Open border	End June	Plants covered with flowers
Brachycome ibericifolia (Swan River Daisy)	1/2 ft.	White, blue, rose	" "	"	Small, Daisy-like flowers very freely produced and showy
Cacalia coccinea (Tassel Flower)	1 1/2 ft.	Orange scarlet	Frame or open border	July, Aug.	Small groups of this orange scarlet flower are very effective in a border
Calandrinia grandiflora ..	"	Bright rose	Open border	"	Should be sown in a sunny position
Calendula officinalis (Common Marigold)	1 ft.	Orange yellow, lemon	" "	June, Aug.	Prince of Orange, or Orange King and Lemon Queen, or Sulphur Yellow, are good sorts
Campanula speculum (Venus' Looking-glass)	1/2 ft.	Purple, white	" "	"	May be grown in a moist, half-shady position, where the flowering season will be longer
Celosia plumosa	1 1/2 ft.	Red, yellow	Greenhouse	Aug., Sept.	Plant in a warm, sheltered position
Centaurea Cyanus (Cornflower)	2 to 3 ft.	Blue, also white variety	Border	July—Sept.	A rich blue prized for cutting; gives its name to the shade of colour known as Cornflower-blue
Centaurea moschata (Sweet Sultan)	1 1/2 ft.	Purple, white, yellow	Frame	End July	Or sown outside in April, useful for cutting
Chrysanthemum (Annual) : Carinatum	2 ft.	Generally three colours in a flower	Frame or open border	End June	Known also as tricolor
Coronarium	2 to 3 ft.	Double and single white and yellow	" "	"	Very much grown for cut flowers
Segetum, or Star varia.	1 1/2 to 2 1/2 ft.	Shades of yellow and white	" "	"	Four good varieties are known as Northern, Eastern, Morning and Evening Stars

Name	Height in feet	Colour of Flowers	Where to Sow	Season of Flowering	Remarks
<i>Clarkia elegans</i>	2 ft.	Salmon, pink, white, scarlet	Frame or open border	July—Aug.	Sutton's Firefly Clarkia (scarlet crimson) was the most talked of annual at the Temple Show of May, 1910
<i>Clarkia pulchella</i>	1½ ft.	White, rose, red purple	" "	"	When given ample space Clarkias branch freely and flower profusely
<i>Cockscomb</i>	½ to 1 ft.	Yellow, crimson	Warm greenhouse	Aug., Sept.	Plant out in July or Aug. in a warm, sheltered situation
<i>Collinsia bicolor</i>	1 ft.	Lilac and white	Open border	End June—Aug.	A popular town annual
<i>Convolvulus major</i> (Climbing Convolvulus)	6 ft. or more	Numerous colours, blues in particular	Frame or border	July—Sept.	A popular climbing annual for verandas and trellis work
<i>Convolvulus minor</i> (Dwarf Convolvulus)	3 ft.	Various colours	" "	"	Useful as edging to shrubbery border, or planted in small groups
<i>Coreopsis tinctoria</i> (bicolor)	2 to 3 ft.	Yellow and brown	Frame or open border	"	In addition to this sort there are many other Annual Coreopsis, or Calliopais, as some people call them
<i>Cosmos bipinnata</i> (Cosmos) ..	3 to 5 ft.	Rose, also white variety	Greenhouse or frame	Aug., Sept.	Must be sown early in March or the plants will not flower until very late in the season
<i>Delphinium Ajacis</i> (Annual Larkspur) Dwarf Rocket, or Hyacinth-flowered	3 ft.	Rose, blue, white	Open border	End June, July, Aug.	Branching or tall stock-flowered Larkspurs, a valuable town and suburban annual
<i>Dianthus chinensis</i> (Indian Pink) Hedderigi (Japan Pink)	1 ft.	Several colours	" "	"	Double and single flowers, useful for beds, and as cut flowers for small vases, groups of one colour along the front of a mixed border deserve attention
<i>Dianthus chinensis</i> (Indian Pink) Hedderigi (Japan Pink)	½ to 1 ft.	Mixed colours	Best raised in greenhouse	July, Aug.	May be grown as an annual
<i>Dianthus chinensis</i> (Indian Pink) Hedderigi (Japan Pink)	"	White, salmon, pink, crimson, scarlet	" "	"	
<i>Dianthus chinensis</i> (Indian Pink) Hedderigi (Japan Pink)	1 to 1½ ft.	Bright yellow	" "	End July	

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useful for beds, and as cut flowers for small vases, groups of one colour along the front of a mixed border deserve attention. May be grown as an annual or biennial

End July—Sept.

house

White, salmon, pink, crimson, scarlet

Bright yellow

Erysimum arvensium .. 1 to 1½ ft.

Name	Height in feet	Colour of Flowers	Where to Grow	Season of Flowering	Remarks
<i>Echecholtia californica</i> .. Rose-coloured varieties	1 to 1½ ft.	Yellow Shades of rose	Open border "	July—Sept. "	Small Poppy-like flowers. There are numerous selections, notably <i>Rose Queen</i> , <i>Rose Cardinal</i> . Of this <i>Gaillardia</i> , numerous single and double varieties are grown in gardens. <i>Gillias</i> are particularly valuable as edgings, or small groups in front of a mixed border.
<i>Gaillardia plectra</i> ..	1½ to 2 ft.	Yellow, red	Greenhouse or frame	"	
<i>Gillia capitata</i> ..	1 ft.	Blue	Open border	End June—Aug.	
<i>Nivalis</i> ..	"	White	"	"	
<i>Tricolor</i> ..	"	Lilac and white	"	"	
<i>Godetia</i> , Duchess of Albany	1 ft.	Pure white	"	"	
<i>Lady Albemarle</i> ..	"	Crimson	"	"	
Double varieties ..	2 ft.	Crimson, rose, mauve, pink	Frame or border	"	
<i>Bridesmaid</i> ..	1 ft.	White, suffused with rose	"	July, Aug.	There are many varieties of <i>Godetia</i> , varying considerably in colour; they are especially effective in masses. The dwarf varieties are useful for bedding.
<i>Afterglow</i> , or <i>Carminaea compacta</i>	½ to ¾ ft.	Carmine red	"	"	
Dwarf varieties ..	"	Mixed colours	"	"	
<i>Gypsophila elegans</i> ..	1 to 1½ ft.	Small feathery white	"	"	
<i>Elegans</i> , rose or pink ..	"	Tinted pink flowers	Open border "	June, July "	Valuable for cutting to arrange with flowers, or as a ground-work to taller plants: a bed of Spanish or English Iris, for instance.
<i>Helianthus annuus</i> (Common Sunflower)	6 to 10 ft.	Immense yellow	Frame or border	July, Aug.	The large-flowered Sunflowers have immense heads of flowers; and the miniature varieties are extremely useful for cutting. <i>Stella</i> and <i>Orion</i> being especially good sorts.
Double Sunflower ..	6 ft.	Orange yellow	"	"	
<i>Cucumerifolius</i> or <i>Minimature</i> Sunflower	3 to 4 ft.	Golden yellow	"	"	
<i>Helichrysum bracteatum</i> (Everlasting Flower)	2½ to 3 ft.	Pink, white, yellow, scarlet	"	"	Favourite flowers for the border and cutting for winter decoration.
<i>Helipterum Sandfordii</i> (Immortelle)	1 ft.	Yellow	Sunny border	"	Elegant Everlasting Flowers, also known by the name of <i>humboldtianum</i> .

Name	Height in feet	Colour of Flowers	When to Sow	Season of Flowering	Remarks
<i>Humulus japonicus</i> (Annual Hop)	8 to 10 ft.	Grown for foliage; there are a green-leaved and also a variegated-leaved variety	Best sown in heated greenhouse	July, Aug.	A rapid-growing climber for fences and verandas
<i>Iberis</i> (Candytuft) <i>Empress</i> ...	1 ft.	White	Frame or border	"	The Annual Candytufts are one of the showiest hardy annuals grown in gardens, forming a sheet of colour when in flower
<i>Carmine</i> , <i>Crimson</i> ..	"	Bright carmine and dark crimson sorts	"	"	Forms a symmetrical bush, and with Sweet Alyssum as a groundwork is particularly effective
<i>Little Prince</i> ..	$\frac{1}{2}$ ft.	Snow white	"	"	The most popular annual grown for cut-flower decoration
<i>Kochia trichophylla</i> (<i>scoparia</i>) (Summer Cypress)	2 ft.	Light green foliage, changing to crimson in Sept.	Greenhouse for preference	July—Sept.	Valuable for cutting, and to grow extensively on long borders
<i>Lathyrus odoratus</i> (Sweet Pea)	6 to 8 ft.	Many and varied shades of colour	Greenhouse, frame, or border	July—Aug.	Also white variety <i>elegans</i> alba
<i>Lavatera trimestris</i> (Mallow)	3 ft.	Rose, also white variety	Open border	End June—July	A popular Californian annual
<i>Layia elegans</i> ..	1 ft.	Yellow-edged white	"	June, July	One of the quickest annuals to bloom outside from seeds
<i>Leptosyne Stillmanii</i> ..	$1\frac{1}{2}$ ft.	Golden yellow	"	End June—July	The flowers of <i>Linarias</i> are spurred, and might be named Miniature Snapdragon
<i>Limnanthes Douglasii</i> ..	$\frac{1}{2}$ ft.	Yellow and white	"	"	One of the showiest annuals grown
<i>Linaria bipartita</i> alba, or Snow White	1 ft.	Pure white	"	July, Aug.	Annual Lupins may be sown in the open border, but it is better to raise them under glass and plant out sturdy seedlings in May
<i>Reticulata</i> , or <i>Crimson and Gold</i>	"	Golden yellow and dark crimson	"	"	
<i>Linum grandiflorum</i> (Scarlet Flax)	$1\frac{1}{2}$ ft.	Rich, dark red	"	"	
<i>Lupinus</i> (Annual Lupin) : <i>Hartwegi</i> ..	2 ft.	Blue and white, also pure white variety	Greenhouse or frame	July, Sept.	
<i>Hybridus coccineus</i> ..	"	Crimson, white tipped	"	"	
Dwarf annual varieties	$1\frac{1}{2}$ ft.	Various colours	"	"	
<i>Malcomia maritima</i> (Virginian)	$1\frac{1}{2}$ to 1 ft.	Several colours, including	Open border	"	

FLOWERS FROM SEED

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Annual Lupinus may be sown in the open border, but it is better to raise them under glass and plant out sturdy seedlings in May. A popular early-flowering annual for the border

July, Sept.
" "
" "
End June,
—July

Greenhouse or frame
" "
" "
Open border

Blue and white, also pure white variety
Crimson, white tipped
Various colours
Several colours, including white and red

2 ft.
" "
1 ft.
1 to 1 ft.

Hartwegi
Hybridus coccineus
Dwarf annual varieties
Malcolmia maritima (Virginian Stock)

Names	Height in feet	Colours of Flowers	Where to sow	Season of Flowering	Remarks
<i>Malope trifida</i>	2 to 3 ft.	White, rose, red	Open border	July, Aug.	Large, Mallow-like flowers
<i>Matricaria eximia</i> (Snowball, or Silver Ball)	1 ft.	Double white	Greenhouse or frame	July—Sept.	Useful double varieties of the "Feverfew"
<i>Golden Ball</i>	1 to 1½ ft.	Double yellow	" " greenhouse or frame	July, Aug.	Magnificent annuals producing a gorgeous display in the garden. Their delightful fragrance gives them a special value for cutting: There are many sorts in addition to those mentioned
<i>Matthiola annua</i> (Stock), Ten-week	1½ to 2 ft.	Numerous colours may be purchased	" " " border	" "	A dwarf annual for sunny rocky or border
<i>Giant Tree or Perfection</i>	1½ to 2 ft.	Six to eight separate colours	Open border	End June—Sept.	Fragrance in the garden is best represented by <i>Mignonette</i>
<i>Beauty of Nics</i>	1½ ft.	Salmon pink	Cool greenhouse or frame	July—Aug.	Large-flowered varieties of Musk, useful for edging and moist borders
<i>Princess Alice</i>	1½ ft.	Pure white	Frame or border	End June—Aug.	One of the easiest annuals to grow; there are large-flowered and dwarf compact strains
<i>Mesembryanthemum pyropeum</i> (tricolor)	1½ ft.	Crimson and white	Open border	" "	A well-known spreading annual
<i>Mignonette</i> (<i>Reseda odorata</i>), Many distinct sorts	1 to 1½ ft.	Tints of white, red, yellow	Greenhouse or frame	July, Aug.	The delightful fragrance of the Tobacco Plant in the evening is well known
<i>Minulus tigrinus</i> (Monkey Musk)	1 to 1½ ft.	Blotched flowers, light yellow ground colour	Open border	" "	The variety, <i>Miss Jekyll</i> , has much brighter flowers
<i>Nemesia strumosa</i> Suttonal ..	1 ft.	Offered in six colours: white yellow, rose-pink, orange, crimson, red	Greenhouse or frame	End June—July	The name of <i>Shirley</i> is given to this Poppy, owing to the fact that the strain was first selected in the Rev. W. Wilks' garden at Shirley vicarage. Poppies do not transplant readily, so they should be sown where they are to flower
<i>Nemophila insignis</i> ..	1 ft.	Blue, also white variety	Open border	" "	
<i>Nicotiana alata</i> (affinis) (Tobacco Plant)	2 to 3 ft.	White; there is also a strain of mixed colours offered as hybrids	Greenhouse or frame	July, Aug.	
<i>Nigella damascena</i> (Love-in-a-Mist)	1 to 1½ ft.	Double blue	Open border	" "	
<i>Papaver Rhoeas</i> (Shirley Poppy)	2 ft.	Many bright colours	" "	End June—July	
<i>Sonchiferum</i> (Opium Poppy)	2 to 3 ft.	Double mixed colours	" "	" "	
<i>Umbrosium</i> , and numerous other sorts	1½ ft.	Crimson, black base	" "	" "	

Name	Height in Feet	Colour of Flowers	Where to Sow	Season of Flowering	Remarks
<i>Phacelia campanularia</i> ..	½ ft.	Bright blue	Open border	End June—Aug.	An attractive, early-flowering annual
<i>Phlox Drummondii</i> ..	1 ft.	Variety of beautiful shades	Greenhouse, frame, or border	July—Sept.	A beautiful free-flowering annual, to grow when masses of colour are wanted
<i>Polygonum orientale</i> (Garden Pericary)	3 ft.	Ruby red, also white variety	Frame or border	July, Aug.	Graceful, drooping plumes of flowers, which are suitable for the mixed border
<i>Portulaca</i> (Purslane), Single and Double varieties	½ ft.	Red, white, yellow, etc.	Dry, sunny border	"	Sow early; a brilliant, low-growing annual for edging
<i>Pyrethrum aureum</i> (Golden Feather)	½ ft.	White	Greenhouse, frame, or border	Not allowed to flower	Charming yellow foliage used as an edging, or in carpet bedding
<i>Salpiglossis sinuata</i> , varieties	2½ to 3 ft.	Numerous colours, many prettily veined	Greenhouse or frame	July, Aug.	Suitable for a bed, as it lasts for a long time in good condition
<i>Salvia Horminum</i> (Blue Beard Salvia)	1½ ft.	Purple bracts	Frame or border	July—Sept. and Oct.	The attractive parts of this annual are the purple bracts, which last in good condition for fully three months
<i>Sanvitalia procumbens</i> , Double and Single varieties	½ ft.	Yellow and crimson	Open border	July, Aug.	A popular dwarf annual for edging
<i>Saponaria calabrica</i> (Italian Soapwort)	"	Pink, also white variety	"	"	Flowers produced in profusion
<i>Scabiosa atropurpurea</i> (Scarabious)	2 to 3 ft.	White, red, purple, mauve, lilac, and black-crimson are a few of the most distinct colours	Greenhouse or frame	July, Sept.	Scarious bloom for a long time, and are especially valuable for a bed or cut flowers
<i>Schizanthus</i> Hybrids	1½ to 2 ft.	Mixed colours	"	July, Aug.	Schizanthus are pretty annuals for the mixed border, being slender in growth; a few pieces of broom should be placed amongst them for support
<i>Pinnatus</i> varieties	"	Lilac, pink, white	"	"	
<i>Retusus</i> ..	1½ ft.	Red, tipped gold	"	"	
<i>Wisetonensis</i> ..	1 ft.	Light-coloured flowers	"	"	
<i>Senecio elegans</i> (Double)	1 to 1½ ft.	Crimson, purple, rose	Frame or border		

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Scenecioideae are pretty annuals for the mixed border, being slender in growth: a few pieces of broom should be placed amongst them for support, close-growing attractive, very free-flowering plants.

Name	Height in Feet	Colour of Flowers	Where to Sow	Season of Flowering	Remarks
<i>Silene Armeria</i> (Lobel's Catch-fly)	1 to 1½ ft.	Rose	Open border	July, Aug.	A free-growing annual, useful for cutting
<i>Statice alba</i>	1 ft.	Blue	Preferably green-house frame	Aug., Sept.	Useful everlasting flower for cutting to preserve in winter
<i>Tagetes erecta</i> fl. pl. (African Marigold)	2½ ft.	Orange, lemon	Frame	"	Popular, tall-growing annuals with immense heads of flowers
Legion of Honour ..	1 to 1½ ft.	Yellow, brown blotches	Preferably frame	July—Sept.	Valuable for ribbon borders
<i>Signata pumila</i> ..	1 ft.	Yellow	"	"	A popular climber for fences and veranda
<i>Tropaeolum majus</i> (Climbing Nasturtium)	6 ft. or more	Shades of red, yellow	Frame or outside	"	Dwarf Nasturtium flower freely on poor soil
<i>Minor</i> (Tom. Thumb Nasturtium)	1 to 1½ ft.	Numerous shades of colour	"	"	Prized for winter decoration
<i>Xeranthemum</i> (Immortelle)	2 ft.	White, purple, rose	Sunny border	"	There are few more valuable tall annuals for large beds
<i>Zinnia Double</i> (Zinnia elegans)	2 ft.	Many colours, including white, red and yellow	Greenhouse or frame	"	than the double Zinnia

SEEDS OF GREENHOUSE PLANTS TO SOW IN MARCH

Name	Height in Feet	Colour of Flowers	Season of Flowering	Remarks
<i>Achimenes</i>	1 to 1 ft.	Numerous shades of colour	The usual season of flowering is July to Sept., but the first season from seeds, very few will flower before Sept.	A valuable greenhouse bulbous plant with tubular flowers, useful for hanging baskets and pots
<i>Agapanthus umbellatus</i> (African Lily)	3 ft.	Blue, also white variety	Aug., Sept.; will not flower the first season from seeds	An easily grown plant for large pots and tubs
<i>Aloysia citrifolia</i> (Lemon Plant)	2 ft. or more	Pale lilac	Sept., Oct.	Well known for the fragrance of the leaves

Name	Height in Feet	Colour of Flowers	Season of Flowering	Remarks
Aralia Sieboldii (Castor Oil Plant)	1 to 4 ft.	White	Oct., Nov.	A popular room and shop plant, wrongly named the Castor Oil Plant
Asparagus plumosus (Asparagus Fern)	3 to 6 ft. or more trailing	Greenish	Summer	Valuable foliage plant for cutting to arrange with bouquets and button-holes; the dwarf variety nanus is a pretty pot plant
Balsam, Impatiens Balsamina	1½ ft.	Many brilliant colours	Aug., Sept.	An old-fashioned greenhouse and window plant, of which there are two types, the Rose and Camellia-flowered
Begonia Rex	1 ft.	Tinted pink	Autumn	Valuable for the velvety and marbled foliage
Begonia (Fibrous-rooted), semperflorens	"	Red, white, pink	Sept. to Christmas	Sown in March these Begonias flower freely in a warm greenhouse in autumn and early winter
Browallia speciosa major ..	1½ to 2 ft.	Blue	Aug., Oct.	Pretty Peruvian annual
Capsicum (Pepper Plant) ..	1 to 1½ ft.	White, small	Summer	Ornamental fruits for greenhouse decoration in autumn. Cardinal (scarlet fruit), Golden Dawn (yellow), Celestial (crimson)
Carnation, Perpetual-flowering, or American	2 ft.	Various colours	Nov. onwards	Raising greenhouse Carnations from seeds is a pleasant occupation
Calceola pyramidalis	½ ft.	Crimson, yellow	Aug., Oct.	The colours are very bright in the greenhouse in autumn
Calceola Cristata (Cockcomb)	1 to 1½ ft.	Yellow, purple anthers	"	Graceful, slender spikes of yellow flowers, lasting for a considerable time.
Chrysanthemum, Autumn-flowering	3 to 4 ft.	Various, single, semi-double and double	Oct. to Dec.	The Japanese Chrysanthemums are readily raised from seeds
Colusa, fine-leaved varieties	1 to 3 ft.	Blue	Autumn	Grown for the beautiful-coloured foliage, not for the flowers
				Useful for the greenhouse and

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able time.
The Japanese *Chrysanthemum* are readily raised from seeds. Grown for the beautiful-coloured foliage, not for the flowers. Useful for the greenhouse and dwelling.
A striking plant for the greenhouse; may be stood outside in summer.

Name	Height in Feet	Colour of Flowers	Season of Flowering	Remarks
<i>Chrysanthemum</i> , Autumn-flowering	3 to 4 ft.	Various, single, double and double	Oct. to Dec.	
<i>Coleus</i> , fine-leaved varieties	1 to 3 ft.	Blue	Autumn	
<i>Cyperus alternifolius</i> (Umbrella Plant)	1 to 2 ft.	Inconspicuous green	Foliage plant	
<i>Erythrina Crista-galli</i> (Coral Tree)	3 to 4 ft.	Scarlet	Autumn	

Name	Height in Feet	Colour of Flowers	Season of Flowering	Remarks
<i>Grevillea robusta</i> (Australian Silky Oak)	2 to 6 ft.	Seldom flowers in this country	Fern-like foliage	Increases in height from year to year
<i>Habrothamnus aurantiacus</i>	10 ft. or more	Orange yellow	Autumn	Free-growing climbers for pillars or back wall of a greenhouse
<i>Elegans</i>	1 to 1½ ft.	Red	Winter	Continues to flower throughout the winter in a warm greenhouse
<i>Impatiens Holstii</i>	1 to 1½ ft.	Vermilion red	Autumn, winter	The unique colour of the flowers of this climbing annual cannot be adequately described
<i>Ipomoea rubro-carulea</i> (Heavy Blue Convolvulus)	1 ft. 6 ft.	Bright carmine red Azure blue	" Sept. "	Pretty alike in pots and hanging baskets
<i>Lobelia tenuior</i> (ramosa)	½ to 1 ft.	Blue, also white variety	July to Sept.	Silvery foliage; pretty basket plant
<i>Lotus peltorhynchus</i> , Bertholletii (Bird's-foot Trefoil)	trailing	Scarlet	Autumn	Well known, owing to the leaves drooping when touched
<i>Mimosa pudica</i> (Sensitive Plant)	1 to 2 ft.	Mauve	July to Sept.	Long trails of elegant foliage; a smaller-leaved variety is known as myrtifolium
<i>Myrsiphyllum asparagoides</i> (Saulax)	6 to 8 ft.	Grown for the foliage		A well-known shrub; requires a warm wall if grown outside in the London district; makes a useful pot plant
<i>Myrtus communis</i> (Myrtle)..	1 to 4 ft. or more	White	July	Pretty in baskets
<i>Oxalis floribunda</i>	½ ft. climber	Rose Blue	March, April	A quick-growing greenhouse climber
<i>Passiflora carulea</i> ..	1 to 2 ft.	Many shades of colour	Summer and autumn	Seedling <i>Ceanothus</i> should be allowed to make one straight growth till they flower
<i>Pelargonium</i> , zonal (Geranium)	1 to 2 ft.	Lilac, white, rose, etc.	Flowers in autumn from seeds sown in March	Vast improvements have been made in the size, colour, and floriferous character of this
<i>Primula obconica</i> ..	½ ft.	White	Autumn and winter	Primula by florists
<i>Richardia ethiopica</i> (Arum Lily)	3 ft.	White	Jan. to April	The Arum Lily is readily raised from seeds, 20 of which only cost a penny
<i>Saintpaulia ionantha</i> (Umbrella Violet)	½ ft.	Rich purple, also white variety	Autumn and winter, in a warm greenhouse	Dainty little pot plants, with small thick velvety leaves

Name	Height in Feet	Colour of Flower	Season of Flowering	Remarks
<i>Schizanthus Wislizenensis</i> (Butterfly Flower)	1 to 2 ft.	Light colours	Aug. to Oct.	To obtain bushy plants, take out the tips of the shoots several times
<i>Solanum capsicastrum</i> (Star Capsicum)	"	Small white	Summer	A valuable greenhouse plant, with orange-coloured fruits the size of marbles at Christmas
<i>Solanum jasminoides</i>	climber	White	July to Sept.	A slender climber with a profusion of white flowers
<i>Statice Suworowi</i>	1 to 2 ft.	Rose	Autumn	A hardy annual, but of great value for the cool greenhouse
<i>Thunbergia alata</i>	3 to 4 ft.	Buff, also white variety	July to Sept.	A pretty greenhouse climbing annual, also useful in hanging baskets
<i>Torenia Fournieri</i>	1 to 1 ft.	Pale violet, dark blotch also white variety	" "	A free-flowering greenhouse annual
<i>Viola rosea</i>	1 ft.	Rose, also white variety	" "	Free-flowering pot plants, best in warm greenhouse

SEEDS OF GREENHOUSE PLANTS TO SOW IN APRIL

Name	Height in Feet	Colour of Flower	Season of Flowering	Remarks
<i>Aralia Sieboldi</i> (Castor Oil Plant)	1 to 4 ft.	White	Full-grown, mature plants flower in Oct. to Nov.	New seeds, which germinate quicker, can be purchased in April
Balsam, Rose and Camellia-flowered	1 ft.	Numerous colours	Aug. to Oct.	Popular old-fashioned annuals
<i>Begonia semperflorens</i> (Fibrous-rooted)	1 ft.	Red, white, pink	Sept. onwards, five months, from seeds	In a cold greenhouse the plants do not flower the first season, but make nice roots, which bloom

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April
Popular old-fashioned annuals
In a cold greenhouse the plants do not flower the first season, but make nice roots, which bloom the following year
This is the best month to sow seeds

Aug. to Oct.
Sept. onwards, five months, from seeds
July onwards

Numerous colours
Red, white, pink
Various colours

1 ft.
1 ft.
1 to 2 ft.

Balsam, Rose and Camellia-flowered
Begonia semperflorens
(Fibrous-rooted)
Begonia (Tuberous)

Name	Height in feet	Colour of Flowers	Season of Flowering	Remarks
<i>Campanula pyramidalis</i> (Chimney Bell-flower)	4 to 6 ft.	Rich blue, also white variety	Aug., Sept.	A cold greenhouse filled with a mixture of the two colours is very striking; requires no heat, being perfectly hardy
<i>Capitulum</i> (Pepper Plant) ..	1 to 1½ ft.	White, inconspicuous	Summer	Grown for the highly coloured fruits
Annum ..	"	"	"	Small scarlet
Cardinal ..	"	"	"	Scarlet fruits
Celestial ..	"	"	"	White, changing to crimson
Golden Dawn ..	"	"	"	Yellow
Carnation, Perpetual, or American varieties	2 ft.	Various colours	Nov. onwards	Seedling Carnations are very vigorous, and from a good strain very few of the flowers come single
<i>Celecia pyramidalis</i> ..	¾ ft.	Crimson, yellow	Aug. to Oct.	The colours are very bright and attractive in autumn
<i>Cristata</i> (Cockscomb) ..	1½ ft.	White, blue, crimson, shades	Christmas onwards	An early sowing may be made in April, to commence flowering in mid-winter
<i>Cineraria</i> , Large-flowered ..	1 to 4 ft.	Many beautiful shades	"	Numerous colours of both these
<i>Stellata</i> , or Star ..	1 to 1½ ft.	Vermilion red	Autumn, winter	Impatiens can now be obtained from seeds
<i>Impatiens Holstii</i> ..	1 ft.	Bright rosy red	"	One of the most pleasing colours it is possible to have in the greenhouse, especially effective trailing amongst Asparagus plumosus
<i>Sultani</i> ..	6 ft.	Azure blue	Aug. to Sept.	Pretty, both for pots and hanging baskets
<i>Ipomoea rubro-caculea</i> (Heavenly Blue)	¾ to 1 ft.	Blue, also white variety	Aug. to Oct.	Grown in a frame during the summer and brought into the house in autumn, give a pleasing fragrance to the house, in addition to their decorative value
<i>Lobelia tenuior</i> (ramosa) ..	1 ft.	Reddish spikes	"	Well known, owing to the leaves drooping when touched
<i>Mignonette</i> , Machel Red ..	"	Golden yellow	Aug., Sept.	Many beautiful varieties of this useful plant have been raised by florists
<i>Machel Golden</i> ..	"	Creamy white	Autumn and winter	
<i>Pearl</i> ..	"	Mauve		
<i>Mimosa pudica</i> (Sensitive Plant)	1 to 2 ft.	Lilac, white, rose, etc.		
<i>Primula obconica</i> ..	¾ ft.			

Name	Height in Feet	Colours of Flowers	Season of Flowering	Remarks
<i>Primula sinensis</i> Single Chinese Primrose Double varieties ..	1 ft. " "	Various colours White, red, pink, blue May be purchased in mixed or separate colours	Winter " "	For the sake stages of the greenhouse or conservatory in winter, the Chinese Primroses are indispensable, and require very little artificial heat
<i>Stellata</i> , or <i>Star Primulas</i> ..	1 to 1½ ft.	Many pretty shades of colour, in addition to pure white Rosy purple	June to Aug.	A comparatively new Chinese plant, flowering best 18 to 25 months from seeds
<i>Rehmannia angulata</i> ..	3 to 5 ft.	Rose, also white variety	Aug. to Oct.	An elegant Australian, everlastingly flower
<i>Rhodanthe Manglii</i> ..	1 ft.	Scarlet "	Sept., to Dec. Aug. to Oct.	The Scarlet Sage provides brilliant colour in the autumn
<i>Salvia splendens grandiflora</i> , (Fireball, Glory of Zurich)	1½ to 3 ft. 1½ ft.	Rose, purple and light shades	Commence to flower in Aug., and continue for at least three months	A dwarf, early-flowering variety
<i>Schizanthus in variety</i> (Butterfly Flower) ..	1 to 2 ft.	Small white	Summer, not decorative	One of the most popular half-hardy annuals grown for greenhouse decoration
<i>Solanum capicastrum</i> (Star Capsicum)	"	White and purple fruits	Ripe in autumn and early winter	Cultivated for orange-coloured fruits in winter, especially valuable for Christmas decoration
<i>Solanum Melongena</i> (Egg Plant)	1 to 1½ ft.	White and purple fruits	Autumn, early winter	The long, egg-shaped fruits provide a relief to flowering plants
<i>Statice Bonduelli</i> ..	1 ft.	Yellow	"	Just as the outside flowers are going over, these annuals, sown in April, are pleasing in the greenhouse
<i>Sinata</i> ..	1 ft.	Blue and white	"	Greenhouse twining plant for a wire balloon or short twiggy stakes
<i>Succowii</i> ..	1 to 1½ ft.	Rose	"	A free-flowering greenhouse annual; grow at warm end of the house
<i>Thumburgia alata</i> ..	3 to 4 ft.	Buff, also white variety	Aug. to Oct.	
<i>Torenia Fournieri</i> ..	1 to 1½ ft.	Pale violet, with dark blotch, also white	"	

SEEDS OF GREENHOUSE PLANTS TO SOW IN MAY

Thunbergia alata ..	3 to 4 ft.	Buff, also white variety	Aug. to Oct.	Greenhouse twining plant for a wire balloon or short twiggy stakes
Torenia Fournieri ..	1 to 2 ft.	Pale violet, with dark blotch, also white variety	"	A free-flowering greenhouse annual; grow at warm end of the house
Vinca rosea ..	1 ft.	Rose, also white variety	Aug. onwards	Useful plant for the warm greenhouse.

Name	Height in Feet	Colour of Flowers	Season of Flowering	Remarks
Calceolaria, Herbaceous, Greenhouse Prize or Perfection	1 to 2 ft.	Many shades of colour; flowers usually spotted	April, May	Calceolarias are best grown in a cool house or frame: only sufficient heat being maintained to keep out frost
Cloth of Gold .. Campanula pyramidalis (Chimney Campanula)	4 to 6 ft.	Golden yellow Rich blue, also white variety	Aug., Sept.	An ideal plant for a cold greenhouse, being perfectly hardy, but best grown inside, as bees soon spoil the flowers outside
Carnation, Perpetual, or American varieties	2 ft.	Various colours	Nov. onwards	Seedling Carnations are very vigorous, and from a good strain very few single flowers are produced
Cineraria: Large-flowered varieties .. Stellata, or Star varieties ..	1 1/2 ft. 2 to 4 ft.	Shades of blue, white, red Many beautiful shades	Jan., onwards "	A popular greenhouse plant; should be grown in a cold frame till autumn
Francoa ramosa (Bridal Wreath)	2 to 3 ft.	Pure white	Summer and autumn	The tall, slender spikes are freely produced, and last for some time on the plants
Kalanchoe flammea .. Poinsettia pulcherrima ..	1 1/2 ft. 2 to 3 ft.	Bright red Crimson scarlet	May, June Dec., Jan.	Flowers in about a year from seeds The Poinsettia is usually propagated by cuttings, but those who have no plants can raise them from seeds
Primula floribunda ..	1 to 1 1/2 ft.	Golden yellow	Spring	The variety Isabella has primrose flowers
Forbesii ..	"	Pale rosy-red	May, obtained in flower at any season	Should be grown several plants in a pot
Kewensis ..	1 ft.	Yellow	Dec., April	A free-flowering hybrid raised at New
Malacoides ..	1 1/2 ft.	Mauve, pink	Always flowering, often profusely	A new Chinese Primula
Obconica ..	"	Lilac, white, rose, etc.	Autumn and winter	This Primula is very easy to grow, and has been much improved of recent years

Name	Height in Feet	Colours of Flowers	Season of Flowering	Remarks
<i>Primula sinensis</i> , The Duchees	1 ft.	White, rosy carmine	Winter	May is the best month to sow the main batch of greenhouse Primulas. Pearl, Royal White and Snowflake are good white sorts. Chiswick Red and Reading Scarlet are good red ones.
Blue	"	Porcelain blue	"	
White	"	Pure white	"	
Scarlet	"	Rich, bright red	"	
Pink	"	Shades of rose and pink	"	
Giant strain	"	Crimson, pink, white, terra cotta	"	
Double varieties	1 ft.	Scarlet, pink, blue, white	"	Has distinct whitish foliage
Stellata, or Star varieties	1 to 1 1/2 ft.	White, blue, ruby red, salmon pink, carmine, crimson	"	
<i>Verticillata</i> (Abyssinian Primrose)	1/2 to 1 ft.	Yellow	March, April	
<i>Rehmannia angulata</i> ..	3 to 5 ft.	Rosy purple	June, Aug.	A comparatively new Chinese plant, with <i>Bignonia</i> -like flowers

SEEDS OF GREENHOUSE PLANTS TO SOW IN JUNE

Name	Height in Feet	Colours of Flowers	Season of Flowering	Remarks
<i>Auricula</i> , Florists' varieties ..	1 ft.	Many rich and beautiful colours	May	Beautiful varieties of the Alpine and show <i>Auricula</i> can be raised from seeds
Yellow	"	Rich yellow	"	The Yellow <i>Auricula</i> come quite true from seeds, and are fragrant
<i>Calceolaria</i> , Herbaceous, Prize or Perfection	1 to 2 ft.	Includes a rich selection of colours, many spotted flowers	April, May	An easily grown plant; may be grown in a frame if protected from frosts
<i>Crocus</i> , Gold	4 to 6 ft.	Rich yellow variety	"	A hardy plant, but does not flower in the first year

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Calceolaria, Herbaceous, Prize or Perfection	1 to 2 ft.	Includes a rich selection of colours, many spotted flowers	April, May	Seedling Carnations are very vigorous, and seeds of a good strain produce a large percentage of double flowers
Cloth of Gold Campanula pyramidalis (Chimney Campanula)	4 to 6 ft.	Rich yellow variety Blue, also white variety	Aug., Sept.	A popular plant, requiring quite cool greenhouse treatment
				Tall, graceful spikes of small white blossoms
				At present the flowers are rather sparingly produced, but when cut they last exceptionally well in water
				A pretty greenhouse plant, allied to the Houseleek
				Very free flowering
				A small plant, so several should be placed in one pot
				A hybrid Primrose, raised at Kew
				A new Chinese species
				A sowing of any of the numerous varieties will ensure a good display in early spring
				Has Begonia-like flowers

Name	Height in Feet	Colour of Flowers	Season of Flowering	Remarks
Carnation, Perpetual, Winter-flower or American varieties	ft.	Various colours	Dec. onwards	Seedling Carnations are very vigorous, and seeds of a good strain produce a large percentage of double flowers
Cineraria, Large-flowered vars.	1 to 1 1/2 ft.	Shades of blue, red, white	Feb. onwards	A popular plant, requiring quite cool greenhouse treatment
Stellata, or Star varieties	2 to 4 ft.	Many beautiful shades	Summer and autumn	Tall, graceful spikes of small white blossoms
Francoa ramosa (Bridal Wreath)	2 to 3 ft.	Pure white	Flowers may be looked for at all seasons	At present the flowers are rather sparingly produced, but when cut they last exceptionally well in water
Gerbera Jamesoni (Transvaal Daisy)	1 to 1 1/2 ft.	Orange, scarlet and several pretty shades, including yellow	May, June	A pretty greenhouse plant, allied to the Houseleek
Kalanchoe flammea	1 1/2 ft.	Orange red	Spring	Very free flowering
Primula floribunda	1/2 to 1 ft.	Golden yellow	May be obtained in flower at almost any season	A small plant, so several should be placed in one pot
Forbesii	"	Pale, rosy red	Dec. to April	A hybrid Primrose, raised at Kew
Kewensis	1 ft.	Yellow	Always flowering, often profusely	A new Chinese species
Malacoides	1/2 ft.	Mauve, pink	Winter and early spring	A sowing of any of the numerous varieties will ensure a good display in early spring
Sinensis (Chinese Primrose)	"	Many shades of colour	June to Aug.	Has Begonia-like flowers
Rehmannia angulata	3 to 5 ft.	Rosy purple		

SEEDS OF GREENHOUSE PLANTS TO SOW IN JULY

Name	Height in Feet	Colour of Flowers	Season of Flowering	Remarks
Begonia semperflorens (Fibrous-rooted Begonia)	1 to 1 1/2 ft.	Red, white, pink	Jan. to May	In a warm greenhouse the fibrous-rooted Begonias may be had in flower throughout the year by sowing at different seasons

Name	Height in Feet	Colour of Flowers	Season of Flowering	Remarks
Calceolaria, Herbaceous ..	1 to 2 ft.	Rich and varied colours, many with spotted flowers	April, May	The herbaceous Calceolaria is easy to grow it being only necessary to exclude frost in winter
Cloth of Gold ..	"	Rich yellow	" Spring	The Yellow Arum may be readily raised from seeds; best sown as soon as ripe about July
Calla Eliotiana (Yellow Calla)	2 to 2½ ft.	Golden yellow	Spring and summer	Seedling Carnations are very free-flowering, and especially valuable for cutting
Carnation, Perpetual-flowering, Free or American varieties	2 ft.	Numerous colours	Summer	This is a beautiful stove or warm greenhouse plant, and is easily increased by seeds
Clerodendron fallax ..	1½ to 2 ft.	Scarlet	Flowers may almost always be found on the plants	A South African plant, rather tender for outdoor cultivation, but a pretty pot plant for the cool greenhouse
Gerbera Jamesoni (Transvaal or Barberton Daisy)	1½ ft.	Orange scarlet	Seldom flowers in this country	The seed is large, but their germination is better if the seeds are placed edgewise—not laid down flat
Hybrids ..	"	Shades of scarlet, orange, yellow	Jan. to May, according to the heat in the house	It takes about two years from seeds to flower
Grevillea robusta (Australian Silky Oak)	1 to 4 ft. or more	A foliage plant	July to Sept.	Tall, graceful plants useful to dot in groups of gorgeous flowering plants
Hippeastrum Hybrids (Amaryllis)	1½ to 2 ft.	Red and light colours	Christmas to Feb.	The culture of Mignonette in pots cannot be too strongly recommended; fragrance is also a delightful feature
Humea elegans (Incense Plant)	5 to 6 ft.	Small reddish brown in tall, drooping racemes	"	Perfection, Sutton's Pot and
Mignonette, Crimson King or Machet	1 ft.	Reddish flowers	"	
Giant, or Garraway's White	"	White	"	
Golden Machet, or Cloth of Gold	"	Yellow	"	
Myosotis (Forget-me-not)	"	Deep blue	Dec. to Feb.	

cannot be too strongly recommended; fragrance is also a delightful feature

Perfection, Sutton's Pot and Royal Blue are very good sorts to cultivate in pots for winter flowering

Machet	"	White	"	"
Giant, or Garraway's White	"	Yellow	"	"
Golden Machet, or Cloth of Gold	"	Deep blue	Dec. to Feb.	
Myosotis (Forget-me-not)	..			

Name	Height in Feet	Colour of Flowers	Season of Flowering	Remarks
<i>Nemesis strumosa</i> Suttoni ..	1 ft.	Varied colours	Oct., Nov.	The <i>Nemesis</i> seeds are sold in mixed colours or six distinct colours, separate: scarlet, crimson, orange, yellow, rose pink, and white
Stocks, All the Year Round	1 ft.	White	Dec., Jan.	There are many varieties of winter-blooming Stocks, of which these four can be specially recommended. As a rule, three plants in a pot make a better show than one in the greenhouse
Beauty of Nice ..	2 ft.	Salmon pink	"	Has a <i>Bignonia</i> -like flower; seedlings bloom in about fifteen months
Crimson King ..	"	Brilliant crimson	"	Double Wallflowers are noted for their delicious fragrance, and are as easy to grow as the single sorts
Monte Carlo or Yellow Prince	1½ ft.	Canary yellow	"	
<i>Tecoma Smithii</i> ..	1½ to 3 ft.	Orange yellow	Sept. to Nov.	
Wallflower, Double German	1 to 1½ ft.	Many beautiful shades of yellow, brown, and red	Spring	

SEEDS OF GREENHOUSE PLANTS TO SOW IN AUGUST AND SEPTEMBER

Name	Height in Feet	Colour of Flowers	Season of Flowering	Remarks
<i>Auricula</i> , Alpine	..	Varied colours	End April, May	By sowing the seeds of <i>Auriculas</i> as soon as they are ripe, it is found they germinate much more readily than if kept till spring
Show ..	½ ft.	"	"	A useful plant for the warm greenhouse
Yellow ..	"	Golden yellow	"	By sowing the seeds in August growers who cannot command a great amount of heat will ensure their plants flowering the following summer
<i>Browallia speciosa</i> major ..	2 ft.	Blue	Early spring	
<i>Canna</i> (Indian Shot)	2 to 2½ ft.	Shades of red and yellow	Summer, autumn	

Name	Height in Feet	Colour of Flowers	Season of Flowering	Remarks
<i>Cianthus Dampieri</i> (Australian Glory Pea)	1 to 3 ft.	Scarlet, black blotch	Summer, Autumn	Good plants are obtained from an autumn sowing; grafted on <i>Colutea arborescens</i> , the plants are found to thrive better
<i>Cyclamen persicum</i> varieties	$\frac{1}{2}$ ft.	Red, rose, pink, salmon, white	Nov. to March	An early sowing should be made in Aug. to obtain plants in full flower for Christmas twelve months
<i>Francoa ramosa</i> (Bridal Wreath)	2 ft.	Pure white	June, July, Aug.	A valuable cold greenhouse plant; may be grown in a frame if protected from frost
<i>Fuchsia</i> , Double and Single..	2 to 4 ft. or more	Many rich colours	Summer and autumn	Autumn-raised seedlings come into flower quite early in the summer and continue to autumn
<i>Grevillea robusta</i> (Australian Silky Oak)	1 to 4 ft. or more	A foliage plant	Seldom flowers in this country	The large, thin seeds germinate better if placed endwise in the soil
<i>Heliotrope</i> (Cherry Pie) ..	2 to 3 ft. or more	Shades of purple and mauve, also white	Summer, autumn	By sowing in autumn extra large plants are available for flowering the following summer
<i>Hippeastrum</i> Hybrids (<i>Amaryllis</i>)	1 $\frac{1}{2}$ to 2 ft.	Red and light colours	Jan. to May, according to heat of greenhouse	Sow the seeds as soon as ripe; it takes about two years in a warm house to flower them from seeds
<i>Lantana</i> hybrids ..	1 to 2 ft.	Shades of red, orange, yellow, pink and white	Summer and autumn	A very free-flowering greenhouse shrub, somewhat resembling <i>Heliotrope</i> , but with smaller flower trusses
<i>Lobelia tenuior</i> ..	1 ft.	Blue	April to June	A charming annual for pots and hanging baskets
<i>Mignonette</i> , Crimson King or <i>Machet</i>	"	Reddish flowers	Christmas to March	<i>Mignonette</i> imparts a delightful fragrance to a greenhouse at all seasons. There are now many beautiful varieties, which come very true from seeds
Giant White or Garraway's White	"	White	"	
Golden Machet, or Cloth of Gold	"	Yellow	"	

Magnonette, Crimson King or Machet	Kodish flowers	Christmas to March	
Giant White or Garra-way's White	White	" "	
Golden Machet, or Cloth of Gold	Yellow	" "	
Rehmannia angulata	Rose purple	June to Aug.	A beautiful new plant from China, allied to the Foxglove family

BEDDING PLANTS

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Name	Height in Feet	Colour of Flowers	Season of Flowering	Remarks
<i>Rhodochiton volubile</i>	..	Dark purple, pendent flowers	Summer	A useful climber for the cool greenhouse, very free-flowering; best raised from seeds annually.
<i>Schizanthus pinnatus</i>	..	Purplish lilac, spotted	March to May	A very popular half-hardy annual for greenhouse culture; many and varied strains are offered by seedsmen
<i>Wicksonensis</i>	..	Carmine and orange	" "	It is best to twine <i>Smilax</i> up this string, which can be readily cut with the <i>Smilax</i> when required for decoration
<i>Smilax (Myrsiphyllum) asperigoides</i>	climber	Shades of white, pink, rose Greenish white	Grown for elegant foliage	The varieties of winter-blooming <i>Stocks</i> are numerous; their delightful fragrance is one of their most pleasing features
<i>Stocks</i> , All the Year Round..	1 ft.	White	Jan., Feb.	
Beauty of Nice	2 ft.	Salmon pink	" "	
Crimson King	..	Brilliant crimson	" "	
Monte Carlo or Yellow Prince	1 1/2 ft.	Canary yellow	" "	

POPULAR PLANTS FOR SUMMER BEDDING

Name	How and When to Propagate	Colour of Flowers	Height in Feet	Remarks
<i>Ageratum mexicanum</i>	Cuttings inserted from Jan. to Mar. Seeds sown in heat during Feb. or Mar. Cuttings, Jan. to Mar.	Lilac, blue and white varieties	1 1/2 ft.	Blossoms produced profusely during summer and autumn
<i>Ageratum, Princess Pauline</i>		Lilac blue	1/2 to 1 ft.	A dwarf compact variety, suitable for edging or ribbon borders
<i>Ageratum, Dwarf Blue</i>	Seed, Feb. to Mar. in heat	"	1 ft.	Adapted for edging or ribbon borders
<i>Ageratum, Dwarf White</i>	Seed, Feb. to Mar. in heat	White	"	Well suited to planting with the blue
<i>Alyssum maritimum</i> (Sweet Alyssum)	Seeds sown in cool greenhouse or cold frame during Mar.	Fragrant white	"	An annual, also known as <i>Koeniga</i>
<i>Alyssum, compactum</i> or <i>minimum</i>	Seeds sown as above, or cuttings inserted from Feb. to April	"	1/2 ft.	Invaluable as an edging

Name	How and When to Propagate	Colour of Flowers	Height in Feet	Remarks
Antirrhinum, Intermediate varieties	Seeds sown in a warm greenhouse during Jan. and Feb.	A wide range of colours, which may be used separately or mixed	1 ½ ft.	The intermediate varieties are the best for bedding
Begonia, Tuberosus varieties, single and double ..	Seeds sown Jan. or Feb.; tubers (bulbs) may be purchased at reasonable prices	Many distinct colours, including red, pink, yellow and white	1 ft.	Small beds devoted to one colour are very effective
Colonel Lauesedat ..	Cuttings or cutting up the tubers after starting into growth in Feb.	Double yellow	½ ft.	A small-flowered, double variety
Major Hope ..	"	Double flesh-pink	"	A very popular variety for bedding out
Count Zeppelin and Lafayette ..	"	Double red	"	Popular dwarf bedding varieties
Semperflorens varieties, or Fibrous-rooted Begonias	Seeds sown in heat, Feb.; cuttings Jan. to Mar.	White, red, pink	1 ft.	Crimson Gem and Fairy Queen are two of the best sorts
Calceolaria, Golden Gem } Sultan .. }	Cuttings, Sept., Oct.; small plants may also be obtained by inserting tops in Feb.	Rich yellow Crimson	¾ ft. 1 ft.	Keep in cold frame during winter; plant out in April
Canna (Indian Shot), numerous varieties	Seeds sown Jan., Feb.; dividing crowns, Feb., Mar.	Many shades of red and yellow	2 to 3 ft.	Handsome foliage plants, used as dot plants, and in sub-tropical beds
Centauria candidissima (rag-usina) }	Seeds sown Aug. or Jan. and Feb.	Striking silvery-white foliage	¾ ft.	{ Forms a striking band of white round edge of bed of scarlet Geraniums
Clematis }	Cuttings, Feb., Mar.	Grown for red foliage	1 ft.	{ Attractive, tender bedding plant
Coleus Verschaffeltii .. }	Side growths, freely produced, taken off at any time	Orange-yellow and red	¾ ft.	{ A popular edging plant; leaves 2 in. high; flowers generally removed
Echeveria or Cotyledon glauca and other sorts }	Cuttings, Aug., Sept., and keep young plants growing during winter, or start old	White corolla Coral red Red	¾ to 1 ft. " 1 to 2 ft.	{ Dwarf variety for edging Suitable for border margin Pretty, small, variegated leaves

BEDDING PLANTS

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A popular edging plant; leaves 2 in. high; flowers generally removed

Orange-yellow and red

Side growths, freely produced, taken off at any time

Echeveria or Cotyledon glauca and other sorts

Fuchsia, Allos Hoffmann
Dunrobin Bedder
Gracilis variegata
Mrs. Marshall ..
Rose of Castille
Scarcely or Charming

Name	How and When to Propagate	Colour of Flowers	Height in Feet	Remarks
Geraniums or Zonal Pelandiums:				
Beckwith Pink		Pink	1 ft.	A pleasing colour, sometimes known as Mrs. Robert Hayes
Henry Jacoby		Crimson	"	A very old favourite
Mrs. R. Cannell		Salmon	1 to 1½ ft.	The best of its colour for bedding
Paul Crampel		Scarlet crimson	1 ft.	The most popular bedding Geranium; a favourite of the late King Edward VII.
Snowdrop		White	1 to 1½ ft.	Snow-white, free
Venus		Scarlet	1 ft.	Very free-flowering, effective colouring
West Brighton Gem		"	1 to 1½ ft.	A popular market variety
King of Denmark		Salmon red, semi-double	1 to 1½ ft.	Largely used for bedding out
Coloured-leaved Varieties:	Cuttings, Aug. and Sept.; also lift and pot up old plants in autumn to obtain cuttings to insert the end of Feb. and Mar. The tops of autumn-rooted cuttings may also be inserted, if the plants are large enough	Double red	1 ft.	White edge to leaves
Caroline Schmidt		Pale red	"	Yellow foliage
Crystal Palace Gem		Red	1 to 1½ ft.	Cream edge to leaves
Flower of Spring		"	1 ft.	Golden bronze, an edging variety
Golden Harry Hlover		Red-leaved, small red flower	1 ft.	Narrow leaves, white-edged
Lady Plymouth		Red	1 to 1 ft.	Bronze, yellow edge to leaf
Marshall MacMahon		Salmon pink	"	Golden tricolor leaves
Mr. H. Cox		Red	1 to 1½ ft.	A well-known golden tricolor
Mrs. Pollock		"	1 to 1½ ft.	Medium yellow leaves, dwarf habit
Robert Fish		"	1 to 3 ft.	Immense blooms
Heliotrope (Cherry Pie):	Cuttings, Aug. or Feb. and Mar.	Metallic violet	"	Sweetly fragrant
Lord Roberts ..		Mauve blue	"	Seedling Heliotropes deserve to be more widely known
President Garfield		Various shades of mauve, violet and blue	1 to 2 ft.	Useful companions to Coleus
Mixed ..	Seeds sown in heat, Jan. and Feb.	Grown for red foliage	1 to 1½ ft.	Seedling Lobellias come very true to colour
Irene Lindeni and Wallisi..	Cuttings, Feb. and Mar.	Blue and white		
Lobelia. Dwarf compact varieties	Seeds sown in Feb. and Mar.			

Name	How and When to Propagate	Colour of Flowers	Height in Feet	Remarks
<i>Lobelia</i> , <i>Emperor William</i> Queen of Whites Waverley ..	Cuttings, Feb., Mar. and April from old plants lifted in autumn, or cuttings in Aug.	Deep violet Pure white Small red	$\frac{1}{2}$ to $\frac{3}{4}$ ft. " $\frac{1}{2}$ ft.	An old favourite for edging Dwarf and compact Popular in the North Creamy white leaves, useful for edgings or carpet beds Raised in the Liverpool Botanic Garden
<i>Meembryanthemum cordifolium variegatum</i> <i>Nasturtium</i> <i>Elise</i> ..	Cuttings, inserted in Aug. kept in greenhouse during winter; from these plants cuttings are again inserted in Feb., Mar. and April. Seeds sown in cool greenhouse or frame during Mar. and April	Red Golden yellow	$\frac{1}{2}$ to $\frac{3}{4}$ ft. "	Very rich and effective Seedling <i>Nasturtiums</i> are very easy to raise
<i>Mrs. Clibran</i> .. <i>Vesuvius</i> Tom Thumb varieties	Cuttings, Feb., in heat Seeds, Feb. or Mar. in greenhouse or frame	Rich, deep red Scarlet, crimson, yellow	" "	Free-flowering and compact Makes a very attractive bed Bright yellow foliage, kept dwarf by pinching for edging and carpet bedding
<i>Petunia</i> Compact, single .. Large-flowered, single <i>Pyrethrum</i> , Golden Feather	" Feb. or Mar. in greenhouse or frame Cuttings, Feb. and Mar. Plants from which to take these cuttings are rooted in Aug.	White, rose, striped, purple " flowers, but when grown for bedding they are removed White Pink, white eye	$1\frac{1}{2}$ ft. $\frac{3}{4}$ ft.	Scented, a good border. The most largely grown of all <i>Verbenas</i>
<i>Verbena</i> , <i>Boule de Nègre</i> .. <i>Ellen Willmott</i> .. <i>Purple Queen</i> .. <i>Waverley</i> .. <i>Superb Bedding</i> ..	Cuttings, Feb. and Mar. Plants from which to take these cuttings are rooted in Aug. " Seeds, Feb. in heat	Blue Scarlet Separate or mixed colours	1 to $1\frac{1}{2}$ ft. " " "	A particularly good grower Attractive, rich flowers Seedlings are very vigorous in growth
<i>Alternanthera</i> for Carpet Bedding: <i>Amabilis</i> <i>Amansa grandifolia</i> <i>Amansa spectabilis</i> <i>Aurea nana</i> .. <i>Paronychioides</i> .. <i>Paronychioides magnifica</i> <i>Paronychioides major aurea</i>	Cuttings, inserted during Feb., Mar. and April. No carpet beds are complete without <i>Alternanthera</i> , which can be kept dwarf by clipping			In addition to <i>Alyssum compactum</i> , <i>Meembryanthemum</i> , <i>Golden Feather</i> and <i>Echeveria glauca</i> , previously mentioned, <i>Hemaria glabra</i> , <i>Sedum glaucum</i> , <i>Sagina filifera aurea</i> , <i>Ajuga reptans purpurea</i> , and <i>Lysimachia nummularia aurea</i> are useful for carpet bedding. These are all propagated by division.

CANTERBURY BELL.—Canterbury Bells are generally described by catalogues and other works of reference as July flowering plants. Yet as I write, in mid-September, I have Canterbury Bells in fine bloom, and they were at their best in July. The way to ensure a long succession of flowers with this as with so many other plants is to remove the old blossoms as they fade. Otherwise seeds follow flowers and then all blooming is at an end. Canterbury Bells form seeds very quickly; all the greater reason, therefore, why we should remove the dead blooms. The only disappointing thing about this old flower is that it is a biennial—or, in other words, if seed is sown this year we have to wait until next year for the flowers, and then start all over again with fresh seed sowing. But if the garden contains a reserve border—and how invaluable this is only those know whose garden possesses one—this is a small matter to cavil at. June is the best month for seed sowing, and in drills lightly covered, or a shady border, the seeds soon germinate. When 2 inches or so high, when, in garden parlance, "they are large enough to handle," each is transplanted to a bed or border of well-dug soil (I am sorry always to have to insist on the well-dug soil; it is so very monotonous, but it is very necessary), and put out 8 or 10 inches apart. By late September they will have quite grown up and be ready for planting out where they are to bloom the following summer. Or they may, if necessity compel it, be transplanted in March; they do best, however, when got in their permanent positions before autumn sets in. There, in a nutshell, lies the cultivation of the charming Canterbury Bell. It is not generally known that if seed is sown in a warm greenhouse in February the resulting plants will bloom the same year. They must be hardened to cool treatment, however, as soon as possible, for they cannot be forced. Neither do they make such fine plants as those sown the previous summer.

WALLFLOWER.—In October you may buy really splendid Wallflowers very cheaply. Are they, then, worth growing? It depends upon the point of view. If the reader is one of those whose chief pride in gardening lies in seeing beds and borders aglow with leaves and ablaze with blossom (and, let me whisper it, particularly if they are twice as brilliant as those of his neighbour), then he will probably think it is far better to buy Wallflowers than to grow them. If, however, he is of those who find as much delight in the actual care of the plants from babyhood to flowering time as in the display that marks the consummation of his efforts, then he will agree with me that it is better to sow seeds in May than to buy grown plants in autumn. The reader will then be interested to know that the seeds are sown preferably in soil-filled boxes rather than in the open ground, for slugs and snails may issue invitations for a supper party there, with the seedlings as the "tit-bit" of the evening! I suppose everyone knows that the Wallflower is found growing wild on walls with apparently nothing to sustain it. Many have erroneously concluded

Feather and Echeveria glauca, previously mentioned, Hammaria glabra, and Sedum glaucum, Sagina filifera aurea, Ajuga reptans purpurea, and Lysimachia nummularia aurea are useful for carpet bedding. These are all propagated by division.

Cuttings, made in March and April. No carpet beds are complete without Alternanthera, which can be kept dwarf by clipping

Aurea nana
Paronychioides
Paronychioides magnifica
Paronychioides major
Schmidtii

that a poor, dry soil is what the Wallflower needs. It is true that it is a capital plant to grow in the niches and crevices of an old wall, where the seedlings will live and flower, and while they look well enough on the wall they would make a very sorry display in the flower bed. No, to grow Wallflowers well, to have sturdy bushy specimens that will smother themselves with blossom in spring, good soil and cultivation are necessary. April and May are the months for sowing, despite the slugs and snails, outdoor sowing is decided upon, it is better to sow in drills rather than broadcast, since the seedlings are more easily attended to, and there will be less waste when transplanting is carried out. Before seed is sown the earth must be dug and made level and fine with the rake. When about 2 inches high the seedlings are transplanted 3 inches apart. Some growers pinch off the tip of the tap root, as the long tapering root is called, so as to induce the formation of small fibrous ones. A further transplanting to 9 inches apart becomes necessary in a few weeks' time, then the young plants are not disturbed further until October, when they are put out where they are to bloom. Grow the plants during the summer in well-dug soil in an open position, and never let them suffer from drought (especially soon after being transplanted). It is not really necessary to transplant them twice; the seedlings may be transferred from the rows in which seed was sown and planted out 9 or 10 inches apart there to remain until September or October, when put out where they are to bloom. There are several most handsome varieties now, of which a considerable colour range being represented.

SWEET WILLIAM.—This old-fashioned flower now possesses several up-to-date varieties, consequently its value in the garden has increased. One may obtain seeds in separate colours, and so avoid many of the crude shades that are often seen. Pink Beauty, salmon pink, the finest of all named sorts; pure white and crimson varieties. Scarlet Beauty are also noteworthy. Seed is sown out-of-doors in a half shady border in May and June, and the plants, when about 6 or so high, may be transplanted 6 inches apart and in a sunny position. In October they are planted where the following year's display is needed.

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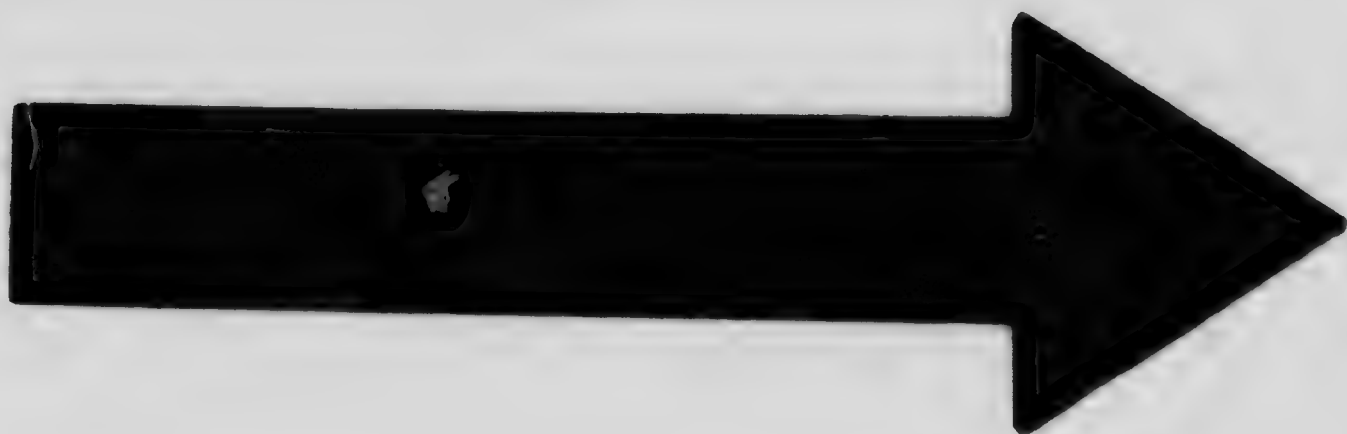
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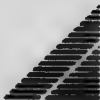
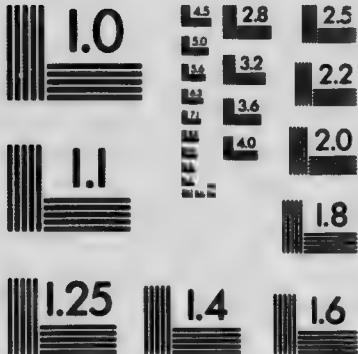
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